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Vitamins Barred in Dry Milk By Act of Congress

An Act of Congress by omission prohibits the sale of nonfat dry milk with vitamins A and D added.

This is pointed out in a column by Philip L. White, Sc.D., secretary of the Council on Foods and Nutrition of the American Medical Association appearing in the December AMA-published *Today's Health* magazine.

The Standards of Identity for nonfat dry milk were established by Congress in 1944 and fortification with these vitamins is not permitted because no provision was made for it in the Act, Dr. White said.

"The Standard of Identity for nonfat dry milk is one of the few such standards enacted by Congress," he pointed out. "Most standards are promulgated by the Food and Drug Administration."

Because milk is counted on to supply nearly all of our vitamin D and much of our vitamin A, Dr. White continued, it is important that all forms of milk be appropriately fortified.

"A considerable amount of nonfat dry milk is distributed in relief and school lunch programs," he said. "The very segments of our population that need adequate sources of vitamins A and D are being in part deprived."

This is also the case with milk distributed overseas by the Food for Peace Program.

Forms of both vitamins that are stable in the dry state are now available, he added. The technological barriers to the fortification of nonfat dry milk have been overcome; only legal barriers remain as obstacles to hurdle, Dr. White concluded.

Eye, Hand Dominance Sometimes Opposite

A large number of persons have opposite eye and hand dominance, according to Kenneth N. Ogle, Ph.D., Rochester, Minnesota.

There are too many exceptions to say that right-handed persons normally have dominance of the right eye and left-handed persons, of the left eye, he wrote in the question-and-answer section of the November 23 *Journal of the American Medical Association*.

At one time some psychologists felt that opposite dominance was a basis for speech and reading difficulties, Dr. Ogle said, but there are many persons with opposite dominance who are "normal in every respect."

"No reason is known for this opposite type of dominance," he added. "In some instances, no doubt, parents have tried to train the right hand to be dominant without considering eye dominance."

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AMA Department of Drugs Makes Two Appointments

The appointment of two associate directors of the department of drugs of the American Medical Association has been announced by Jean K. Weston, M.D., department director.

John R. Lewis, Ph.D., who joined the AMA in 1960, will have primary responsibility for over-all coordination of the activities of the drug evaluation section, the editorial section, and the nomenclature section, Dr. Weston said. Dr. Lewis previously served as acting director of the department and acting secretary of the AMA Council on Drugs.

William Kitto, M.D., a native of Colorado, will coordinate the programs of the sections on adverse reactions, drug documentation, and cutaneous health and cosmetics. During the past two years, Dr. Kitto was associate medical director of Bristol Laboratories, Syracuse, N.Y.

Efficacy of Flu Vaccine Seen At Children's Home

A multiple strain flu vaccine was credited today with a significant reduction in illness during an outbreak of influenza at a children's home.

A report in the November 30 *Journal of the American Medical Association* describes an outbreak of influenza A at the institution in February, 1963, six months after half of the children had received a vaccine containing four virus strains—A₁, A₂, and B.

"There was a significantly greater frequency of illnesses in nonimmunized children compared to immunized children," Hugh L. Moffet, M.D., Henry G. Cramblett, M.D., and Jacqueline Dobbins, M.A., Winston-Salem, N. C., reported.

Seventy-two of 145 nonimmunized children, or 50 per cent, were ill, compared with 42 of 122, or 34 per cent, of the immunized group.

The illnesses which occurred more frequently in the nonimmunized children included upper respiratory, gastrointestinal, and generalized fever-associated illnesses. The greater frequency of fever, or flu-like, illnesses in the nonimmunized is "strong evidence for a protective effect of the vaccine," according to the authors.

The findings agree with previous studies which have clearly demonstrated the effectiveness of influenza vaccine if the vaccine contains an antigen which is identical or nearly identical to the influenza strain causing the outbreak, it was pointed out.

Although quantitation of vaccine effectiveness is exceedingly difficult because of numerous variables, the researchers concluded that their study indicates polyvalent influenza vaccine provided statistically significant protection against illness in this institution.

"There is no indication that current recom-

mendations for influenza immunization should be changed on the basis of information obtained from the 1963 epidemic," they added.

"Polyvalent influenza vaccines can continue to be expected to provide significant protection when influenza is caused by the older antigenic strains. However, the effectiveness of polyvalent vaccines in a new epidemic year cannot be predicted without detailed laboratory studies of the new strain."

The study was conducted while the authors were at Bowman Gray School of Medicine. Dr. Moffet is now at Children's Memorial Hospital, Chicago, and Dr. Cramblett is now at Children's Hospital, Columbus, Ohio.

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Drug Treatment of Psychotic Patients in General Medical Practice

ALLEN J. ENELOW, M.D., *Los Angeles*

■ *It is possible for general medical practitioners to successfully treat many psychotic patients in their offices, provided they have some training in psychiatric diagnosis and in psychotherapy procedures appropriate to the general situation of the practicing non-psychiatrist physician. This has become so because of recent developments in psychopharmacology.*

Drugs are now available which permit control of the symptoms of psychoses with reasonable specificity. The phenothiazines are appropriate for patients with schizophrenic psychoses. The "target symptoms" indicate which one to use.

The affective psychoses are best handled with dibenzazipine anti-depressants. With proper medication and frequent short supportive interviews, many such patients can be successfully treated.

RECENT ADVANCES in pharmacology have made available a large number of compounds that are very useful in the management of psychiatric patients. In some instances, notably the incipient to moderately severe psychotic states, these drugs have made it possible to treat many patients while they remain at home and on the job. Before the intro-

duction of chlorpromazine in 1952, hospitalization was almost mandatory for the management of the psychotic patient. Psychotherapy was often impossible to attempt for some time (if ever) after the onset of the more severe psychotic states.

Developments in psychopharmacology make it possible to work with almost every patient, even those with severely disruptive psychiatric symptoms. These agents permit the physician to make communicative contact and to develop a therapeutic relationship with the patient. Physicians who are reluctant to enter such relationships will often mis-

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use the psychoactive drugs by attempting only to abolish symptoms and, with them, the demands that the patient makes on the physician. If these compounds are introduced into treatment as a substitute for an effective communicative relationship, then they are being incorrectly utilized. Therapy is far less successful, and indeed may fail, if drugs are the only vehicle of treatment. By correct use of drugs in adequate dosage and maintaining an ongoing relationship, the family physician who wishes to do so can treat many psychotic patients he encounters.

There are two necessary pre-conditions for undertaking treatment with the psychoactive drugs. The first is a good background in psychiatric diagnosis (such as may be obtained from continuing education courses in psychiatry for non-psychiatrists that are offered by several of the medical schools in California). The second is an interest in the patient as a person.

Psychotic patients who are not so disturbed as to require treatment in a hospital will be found among the patients in two groups: those with schizophrenic and those with affective psychosis. Therefore, the two classes of drugs to be considered in this article are the phenothiazines, used in the management of schizophrenic patients, and the anti-depressants. The minor tranquilizers, such as chlordiazepoxide (Librium®) and meprobamate (Miltown®, Equanil®), have no place in the treatment of psychosis.

The Phenothiazines

All of the compounds in the phenothiazine group are considered "major" tranquilizers. They are capable of reducing extreme tension or agitation and in many instances have an anti-psychotic activity. Some have demonstrated the capacity to suppress delusions and hallucinations. As a consequence they are primarily indicated for psychotic patients—rarely, if ever, in the treatment of neurosis.^{3,5} In fact, most neurotic patients will become quite uncomfortable, and feel an unpleasant sense of detachment or depression if given phenothiazines.

The pharmacological action of this group includes the following: They block the sympathetic nervous system, giving rise to parasympathomimetic effects, including atropine-like activity. They have anti histamine properties. They are all anti emetic, though to varying degrees. In large dosage they are capable of producing sedation, hypnosis and anesthesia. These dosages, however, generally are far in excess of therapeutic doses. They potentiate analgesics and anesthetics. The ability of the phenothiazines to control extreme anxiety and agitation without producing sleep is probably the result of the site of action. Unlike the barbiturates, which in general act most strongly on the cerebral cortex

(thus depressing functions concerned with analyzing mechanisms of vision, audition and other perceptive functions), the phenothiazines chiefly affect the subcortical structures regarded as parts of the anatomic substrata of emotion; the midbrain reticular formation, the hypothalamus and parts of the rhinencephalon.⁶

The phenothiazines can be divided into three major subgroups. All have the phenothiazine nucleus in their chemical structure and differ only in the substituents.⁴

The *dimethyl subgroup* includes chlorpromazine (Thorazine®), promazine (Sparine®), triflupromazine (Vesprin®), and promethazine (Phenergan®). These agents are the most sedative of the phenothiazines and are therefore most useful in controlling psychotic agitation, hyperactivity and other psychotic symptoms for which a sedative tranquilizer would be desirable. They do not produce nearly the degree of sedation or hypnosis that the barbiturates would if given in sufficient amounts to control psychotic agitation. Phenergan® is often useful in promoting sleep in psychotic patients.

Chlorpromazine (Thorazine®) was first reported to be useful in the management of psychosis by Delay and his associates in 1952. Since that time it has been given to an estimated 50 million patients.² Although at first it was hoped that chlorpromazine would cure psychiatric disorders, it is now clear that its major value is that it ameliorates certain symptoms in both acute and chronic schizophrenic disorders. It is not indicated in the neurotic disorders. The accumulated experience of many clinicians indicates that withdrawn, inactive patients or patients with blunted or dulled affect will be helped very little, if at all, by chlorpromazine. The most useful role of this drug is in the management of severely anxious, disturbed or overactive (excited) schizophrenic patients. The dosage will vary from 300 mg a day to as high as 2,000 mg a day, depending on the severity of the symptoms. After control of symptoms is achieved and maintained for several months, the dose can slowly be reduced until the amount needed for maintenance is found. If this is larger than 200 to 400 mg a day, it will be necessary to concomitantly administer an anti-parkinsonism drug such as *benztropine* (Cogentin®), *trihexyphenidyl* (Artane®) or *procyclidine* (Kemadrin®), since extrapyramidal reactions are very common at that dosage level and above.

There is no clinical evidence for tolerance or addiction. Chlorpromazine has been discontinued after years of administration without withdrawal symptoms. Side-effects are relatively few. The incidence of jaundice is less than 0.5 per cent. The incidence of agranulocytosis is approximately 1 in 250,000 cases. When jaundice occurs, it is most

likely to occur in the first month of treatment. Thereafter it is very unlikely. Fatalities from chlorpromazine-induced hepatitis are very rare. Only six reports involving 14 cases appear in the world medical literature. Chlorpromazine has been given to many pregnant women without harm to mother or infant.²

Promazine (Sparine®) is a drug which has proven to be especially useful in the lesser degrees of psychotic agitation, senile agitation and agitation during withdrawal from alcohol. The usual dosage is 100 to 200 mg a day, divided into four doses. At this dosage level, extrapyramidal effects are rarely seen.

The *piperidyl subgroup* contains only one useful compound. This is thioridazine (Mellaril®). It is used in the same situations as the dimethyl subgroup. It is probably the most sedative of the phenothiazines. In my experience, it is particularly useful in controlling the acute manic state. Despite manufacturer's claims to the contrary, with doses over 200 mg a day, extrapyramidal side-effects are common. Control of an acutely excited, overactive or agitated psychotic patient is rarely achieved on less than 150 mg a day; 200 to 300 mg a day is the more usual necessary dose.

The major pharmacological difference between thioridazine and chlorpromazine are that the latter has lower anti-emetic activity, less adrenergic blocking and less interference with temperature regulation. The effective dose of thioridazine is far smaller than of chlorpromazine. This may account for the fact that with this drug some clinicians have reported control of schizophrenic symptoms with fewer and milder extrapyramidal side-effects than seen with some other phenothiazines.

The third subgroup, the *piperazine phenothiazines*, are the most potent, milligram for milligram, and the least sedative. They are therefore most useful in those psychotic conditions in which apathy and withdrawal are prominent. They are more likely to be effective in the emotionally blunted patient than chlorpromazine or thioridazine. Unlike the other two groups, they are not contraindicated in depressed psychotic patients, although depression does not respond favorably to the administration of phenothiazines. Because of their potency, side-effects are more frequent and more pronounced than with either of the other two subgroups. Extrapyramidal symptoms are almost invariably produced if dosages sufficient to be therapeutically active are given. These drugs should therefore be given together with an anti-parkinsonism preparation. The piperazine compounds often suppress delusions and hallucinations in schizophrenic patients. Chlorpromazine and thioridazine rarely suppress chronic delusions and

hallucinations, although the patient may be relatively unconcerned about them.

The chief representatives of this group are fluphenazine (Prolixin®, Permitil®), trifluoperazine (Stelazine®), perphenazine (Trilafon®), and prochlorperazine (Compazine®). In my experience, the two latter drugs produce extrapyramidal phenomena more than any other of the phenothiazines. However, all phenothiazines do, to some extent. But because of this, fluphenazine (Prolixin®) and trifluoperazine (Stelazine®) appear to be the drugs of choice for chronic, withdrawn, apathetic schizophrenic patients, particularly when delusions and hallucinations are prominent.

The Anti-Depressants

The anti-depressants fall into two groups, the mono-amine oxidase inhibitors (so-called MAO inhibitors) and the dibenzazepine derivatives. The MAO inhibitors have a stimulant effect of relatively short duration on the central nervous system. They are frequently very effective as anti-depressants but have sufficient disadvantages to warrant great caution in their use.¹ They can have serious toxic effects on the liver, with resultant jaundice. Death from liver toxicity has been reported. They are slow in onset of action and difficult to regulate. All MAO inhibitors may cause tremors, overstimulation and insomnia. Hypotensive side-effects must be watched for. The hydrazine MAO inhibitors include iproniazid (Marsilid®), phenelzine (Nardil®), nialamide (Niamid®), and isocarboxazid (Marplan®). In agitated depressions, or in depressed patients with anxiety, the MAO inhibitors are not the drugs of choice and often will increase anxiety or tension. MAO inhibitors may dangerously potentiate anesthetic agents, ganglion blockers, atropine, morphine, meperidine (Demerol®) and other narcotic agents, as well as anti-malarial drugs.

The dibenzazepine derivatives are more akin to the phenothiazine compounds than to the MAO inhibitors. Chemically, the dibenzazepine nucleus is very similar to the phenothiazine nucleus. The drugs have an inhibitory or suppressant central nervous system effect. The electroencephalographic pattern after administration of these drugs is similar to that produced by phenothiazines. These drugs are especially useful in agitated depressions.

Imipramine (Tofranil®) has had extensive use. It is often effective in severe depressions with agitation. Its effect is slow, and depression may not begin to lift for seven to twenty-eight days after administration has begun. Side-effects are frequent and pronounced. They include flushing, excessive perspiration, dry mouth, constipation and postural

hypotension. The patient should be warned about these effects, lest he discontinue taking the drug.

Amitriptyline (Elavil®) is chemically and pharmacologically very similar. Side-effects are far less severe, however, and its action is not as slow as that of imipramine, although each seems to help some patients with severe depressive states who are not helped by the other. The dosages are similar, 75 to 100 mg daily. Amitriptyline is often successful in controlling agitation in depressed patients. Most patients will complain of drowsiness for two or three days after administration is begun. Dry mouth is common.

In order to find an effective anti-depressant, it may be necessary to try several different ones. However, if the physician plans to discontinue one type and use a drug of another type, he should interrupt medication for two weeks if he is discontinuing an MAO inhibitor, and for at least three weeks if he is discontinuing imipramine or amitriptyline in order to try an MAO inhibitor.

The physician who will spend sufficient time with his patients can, with training obtainable in continuing education programs such as the one offered at the University of Southern California, recognize

and treat many psychotic persons. With good management, hospitalization can be very brief or in many instances not necessary. What patients of this kind need is proper medication and frequent supportive interviews. The interviews should not be the traditional 50-minute hour of the psychotherapist. In our advanced clinic courses at U.S.C. School of Medicine for non-psychiatrist physicians, many psychotic patients are being successfully treated with drugs and psychotherapy sessions of 15 to 25 minutes at intervals of seven to fourteen days. This approach is applicable to the practice of almost any family physician.

1934 Hospital Place, Los Angeles, California 90033.

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DRUGS, NEUROSIS *and the Family Physician*

RONALD R. KOEGLER, M.D., *Los Angeles*

■ *Many of the milder emotional disturbances, especially those which manifest themselves by vague physical symptoms, can be treated by physicians who are not psychiatrists. The stronger tranquilizing drugs, such as chlorpromazine, are not suited for most non-psychotic patients. If a patient is sick enough to require chlorpromazine, he should be referred to a psychiatrist. The newer antidepressant drugs are also mainly for severely depressed patients, and they also need a psychiatrist's care.*

There are many patients, however, who will respond to a mild tranquilizer, such as meprobamate, plus 10 to 20 minutes of discussion with the physician. Those who do not show definite improvement within ten interviews should be referred for psychiatric consultation.

Most of the beneficial effects of drugs in non-psychotic patients are related to the attention and interest of the physician who prescribes them, and he should always take a few minutes to discuss the patient's problems with him.

ONE OF THE FAVORITE THEMES of contemporary medical practice is the role of the non-psychiatric physician in the treatment of emotional disorders. Courses, lectures and seminars are available for general practitioners and specialists to learn about the intricacies of psychiatric therapy. This trend toward the use of non-psychiatric physicians as psychiatric therapists was greatly accelerated following

the introduction of tranquilizing drugs in the 1950's. Physicians felt more at home when they could administer drugs to patients with emotional symptoms and no longer had to depend on psychotherapy. However, although tranquilizers performed a valuable function by augmenting the role of the family physician in treating emotional difficulties, uncritical use of them has posed serious problems. Quite commonly they are given in place of friendly, reassuring conversation with the patient, and often they are given when they are not needed or are

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even contraindicated. Addictions and suicides have frequently resulted from inappropriate prescribing of tranquilizers.

We are beginning to realize that drugs are not a "cure-all" for emotional disorders. Since it is the family physician, rather than the psychiatrist, who has been the greatest prescriber of these drugs, it is necessary that we reappraise the role of the family physician in the treatment of emotional disorders. Whom should he treat? What sort of treatment should be used? What are the limitations on the use of non-psychiatric physicians in the treatment of psychiatric problems?

First, we must delineate just what kinds of symptoms indicate the presence of emotional disorder. Second, we must decide what the physician can or should do by way of treatment, especially treatment with drugs.

Types of Emotional Problems

- Quite commonly a physician is called upon for help when a relatively stable person becomes temporarily upset by a tragic event—death of a close relative, divorce, severe financial loss, destructive flood or fire. Here the emphasis is on *temporary upset*; if the patient did not get better rather quickly, one would expect an underlying emotional disorder.

- Another common problem is dealing with a kind of emotionally disturbed patient who rarely consults a psychiatrist. Although they commonly complain of vague aches and pains, sleeplessness and general malaise, the main problems are anxiety, tension and mild depression. Eventually the physician realizes this, a realization that may not help the patient unless the doctor knows what to do for this kind of problem. Most such patients are women and they make up about one-third of general medical practice.

- "Neurotic" patients who clearly have emotional difficulties, with very little masking by physical symptoms are a more serious problem. Although used in my title, the word "neurosis" is a misnomer for these patients. Even psychiatrists rarely see the textbook neurotic, partly because we now recognize that many of the patients of this order are really schizophrenic rather than neurotic, and partly because our culture has changed so that emotional disturbance takes different forms now. The typical patient today does not have dramatic symptoms, but usually suffers from a chronic personality disorder, with mild anxiety complicating a chronic difficulty in feeling adequate and facing up to the wife, husband or boss. Often hidden alcoholism is a complication. When the problems of such persons seem acute or overwhelming they may ask for help from

their family doctor or internist or gynecologist, or they may go directly to a psychiatrist.

- Of course the family physician sees many patients in a patently psychiatric state—delusional or severely depressed psychotics, suicidal patients and the like. These are really less a problem for the physician than are patients with less obvious mental illness, since they are more easily recognizable and the patient or family usually understands why a psychiatric referral is indicated.

Treatment

Who should be treated?

Treatment is simplified if the physician eliminates from consideration those patients who should not be treated by him for their emotional problems.

First of all, he should not become involved in the treatment of obviously psychotic patients. Since need for putting the patient in hospital is always imminent, and the possibility of homicide or suicide is a pressing consideration, referral to a psychiatrist is the best course.

Alcoholics are a peculiar group. They are most commonly treated by non-psychiatrists. Usually there is someone in the community who "specializes" in handling them. This treatment may consist chiefly of "drying-out" in special sanitariums, often with aid of large doses of paraldehyde or barbiturates (many addictions start this way). Alcoholism is one of those conditions which is more common than we realize. If a physician suspects a patient of alcoholism, he is nearly always right.

Patients with personality disorders and mild to moderate anxiety and tension can often be aided over acute periods by their physician. However, although the situation may just be a marriage quarrel at first, it is not unusual to find a gradually developing psychotic reaction as a basic cause. In such a situation, much depends on the training and interests of the individual physician.

The most comfortable role for general physicians is in treating patients who express many of their emotional problems in physical symptoms. In fact, it is better for the family physician to treat such patients than to push them unwillingly to a psychiatrist, where their lack of motivation wastes the time of patient and psychiatrist alike.

And, of course, when emotional upset is clearly related to an outside event (death, for example) the situation should be dealt with by the family physician. However, prolonged and excessive grief does not indicate "too much love," but rather a pathological condition which may require psychiatric consultation and therapy.

What kind of treatment should be given?

Since non-psychiatric physicians would not give insulin shock or electroshock therapy, they have two major means of treatment—talking and drugs.

First, certain drugs should be eschewed. There should be no need for the stronger tranquilizers, such as chlorpromazine. These are useful ordinarily only for seriously disturbed and psychotic patients who ought not be treated by a non-psychiatrist in the first place.

It has been noted that prochlorperazine, for example, is less effective than placebos in treating non-psychotic patients.² In other words, there is some possibility that strong tranquilizers can make mildly upset patients recover more slowly than if they are given a sugar pill. Many of these strong drugs also may bring on or worsen depressions. In addition, common side-effects, such as drowsiness, may be acceptable for a hospital patient but may make it impossible for an outpatient to work. Liver damage, ocular disturbance and occasionally death is attributable to these drugs. These serious side-effects should restrict their use to seriously disturbed patients.

This leaves the milder drugs such as meprobamate, chlordiazepoxide, diazepam and phenobarbital, and also placebos. There are also various antidepressants, including stimulants like amphetamine and combinations of stimulants and barbiturate.

Phenobarbital works no better than placebo, perhaps not as well.¹ Certainly its addicting qualities make it a bad drug to use except for intermittent night-time sedation. Since emotionally disturbed patients are much more likely to become addicted than are other patients, barbiturates should be avoided.

The treatment of the depressed patient with drugs has received a great deal of attention since the advent of the new antidepressants. These drugs are often very valuable in the treatment of severe depression, but that kind of patient is usually treated by a psychiatrist anyhow, and the mildly or moderately depressed patients seen by other physicians usually do not respond to them. Drugs of this kind, particularly monamine-oxidase (MAO) inhibitors, have many dangerous side-effects and several have been removed from the market because of deaths attributed to them. Physicians often go back to the old stand-bys, amphetamine and amphetamine-barbiturate combinations. Unfortunately, tolerance to both of these drugs often develops rapidly. An immediate response to amphetamine may be an ominous sign, for frequently it is an indication that dependence will develop quickly. Psychotic reactions to amphetamine and addiction to barbiturates are quite common in some areas, often because well-meaning physicians prescribed these drugs for

depression. Rarely do psychiatrists use them for this purpose. Indeed there are no drugs that can be depended on to safely give relief from milder depressions.

Many physicians are afraid of using psychotherapy because they do not understand how it works. Actually, we are beginning to realize that it is not too important what one says to a patient, but what is important is that the physician show interest and not brush him off with a prescription. Although talking would appear to be the main characteristic, this is not necessarily the strength of psychotherapy. There is a basic relationship between therapist and patient which transcends words. For example, I have found that a very important factor for successful therapy is that the therapist like the patient.

There appears to be no need for long sessions with the patient. Whether medication is given or not, 15 minutes is sufficient time. That is long enough for the patient to describe what is troubling him, but not so long that the physician has too many opportunities to say things that will get him into trouble. There appears to be little, if any, difference in effectiveness between 15-minute and hour-long psychotherapy for most patients. This therapy—Brief Contact Therapy²—should usually be accompanied by prescription of a mild agent such as meprobamate or chlordiazepoxide. Placebo is just about as good, but placebo-giving is not practical in general medical practice, and conceivably could involve medical-legal difficulties.

How long should patients be treated?

Patients who are going to improve usually show definite signs of improvement within five weeks, and almost certainly within ten weeks. Until improvement begins, they should be seen weekly or once every two weeks. At each visit the physician should spend 10 to 20 minutes with the patient, even if he is prescribing drugs.

What about those who fail to respond in ten weeks? Most should have a psychiatric consultation or referral. Often it is a good idea to say to the patient at the beginning that you would like him to see a psychiatrist if he doesn't start to improve within ten weeks.

Of course there are exceptions. Those with predominantly vague physical complaints of emotional origin ordinarily should be treated intermittently by their physician, even though the condition remains essentially unchanged for years. They seem to need their aches and pains and will resist any efforts to take them away.

It is necessary to discuss psychotherapy when discussing drug therapy. Drugs are not given out by vending machines, but by human beings to other human beings. The compassion and reassurance of

the physician, rather than the capsule prescribed, are often the healing factors.

There is little evidence to indicate any pronounced help from drugs for any of the milder emotional disturbances. It is probably true, however, that patients benefit a great deal by being given some kind of tablet in a reassuring manner. Physicians should not be misled by drug salesmen who extol the miraculous properties of a particular product. Since most physicians will be dealing with the mild emotional disturbances, it is not proper to use drugs which have frequent side-effects or serious toxic properties.

Physicians should recognize that most patients with mild emotional disorders will improve spontaneously, and they will improve more quickly if they are given help. The kind of help is not too important, except that physicians must not, in their eagerness and anxiety to help, permit themselves to prescribe excessively strong drugs or do anything else that may harm the patient.

Many of the conditions that we so loosely call "neurotic" are hardly psychiatric conditions at all, but are perhaps related to changes in our culture. The break-up of the self-sufficient family unit, education of women and relaxed control of children

have been factors contributing to many of the confused psychological phenomena we see in ourselves and our patients. It is unlikely that any drug will completely cure anxiety related to the changing world in which we live.

One thing is clear. The modern family is not capable of providing the kinds of emotional support that the family once provided, and individuals grow up with a great need for a friendly, authoritative help. The physician who does not spend 10 or 15 minutes with his anxious patient is missing an opportunity to use one of his most effective methods of therapy, and the combination of this with mild tranquilizing drugs should result in improvement of most patients with emotional symptoms.

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Electrical Burns of the Mouth

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■ *The amount of tissue loss in electrical burns of the commissure usually is greater than is at first anticipated. Therefore, conservative treatment is advisable until healing is complete, at which time the deformity can be accurately evaluated and whatever reconstructive operation is necessary can be performed.*

THE MOST FREQUENTLY encountered electrical injury in children is a burn about the mouth caused by the intense heat of arcing current when the victim bites through the insulation on a lamp cord or the like. The tissue damage is essentially all due to heat energy, for usually the circuit is quickly interrupted by the melting of a protective fuse, no current passing through tissues unless the child is well grounded. Hence the burn is confined to the point of contact. In an ordinary house lighting circuit fused with a 15 ampere fuse, there is 1,000 calories of heat expended in 0.5 second or less. The heat released by such an arc in such a circuit is at a temperature of 2,500 to 3,000 degrees centigrade.

Because the time available for the conduction of heat from the arc site is so brief, the gradient of tissue damage is steep and closely approximates

the gradient of temperature. This accounts for the localization of arc burns, with total destruction of all tissue within the confines of the burn while tissue immediately surrounding the burned area is relatively undisturbed.

The amount of tissue destruction varies in severity from involvement of lip mucosa alone to destruction of the lip, alveolus, tongue, hard palate and cheeks. The burn most commonly involves one oral commissure and the adjacent upper and lower lips, the lower usually being the more severely damaged. Typically, the burned area is sharply demarcated, and there is little inflammation in the surrounding tissues. The burn is painless. The eschar separates and sloughs more slowly than does that of burns of more ordinary kind, and healing with epithelialization is quite prolonged. However, the resulting scar does contain elastic tissue fibers and is relatively soft and pliable.



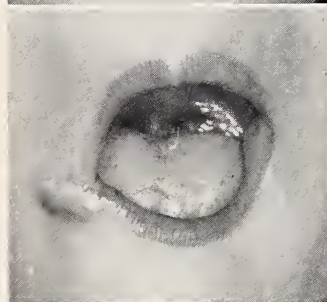
Appearance at time of injury.



Three weeks after injury.



One month after injury. Note excellent healing with minimal deformity.



Four months after injury. Note scar formation with contracture.



Seven months after injury and two months after reconstructive operation.

Histologically, the tissue enclosed within the sharply demarcated borders of an electrical arc burn is totally destroyed, and there is no gradation from full-thickness destruction at the central point to erythema at the periphery of the wound as is the case with other burns. However, the pathologic changes may extend beyond the obvious confines of the burn in the form of minute venous thrombosis, the eventual tissue loss therefore usually being greater than first expected.

Although some investigators advocate immediate debridement and repair of simple electrical burns of the mouth involving only lip soft tissue, usually it is best to delay until the wound is completely healed and the amount of deformity can be accurately assessed. Brown and McDowell¹ stated: "Many rather extensive electric burns of the mouth heal with surprisingly little deformity, so that the required secondary work is much less than was surmised at first."

Reconstruction of commissure and adjacent lip is accomplished by means of scar excision, reestablishment of the commissure in its proper location, and resurfacing of denuded orbicularis oris and subcutaneous tissue with adjacent mucosa either in the form of sliding or rotation flaps from the gingivo-labial or buccal areas. A "Z" plastic repair of the cutaneous scar at the commissure helps mitigate scar contracture which is so noticeable in this mobile area.

The following case illustrates healing of an electrical burn of the mouth followed by delayed repair:

A four-year-old boy, chewing on a light cord, was burned at the right oral commissure and adjacent lips. As can be seen in the photographs, the tissue loss was greater than first appearance indicated it would be. The slough separated in 12 days, and the wound was completely healed in one month with surprisingly little deformity. However, the scar contracted, causing functional and cosmetic deformity of the commissure. Five months following the injury, the commissure was reconstructed and the lip resurfaced with local mucosal flaps. A further "Z" plastic procedure was performed on the skin incision.

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PROSTATITIS

An evaluation of laboratory procedures and of the effectiveness of nitrofurantoin

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■ *An estimate of the pus content of prostatic fluid is as good as a count in a counting chamber. There is no correlation between the pus content and the severity of symptoms. Of all of the criteria for making a diagnosis of prostatitis, the pus content of the fluid is the least important. Culture of prostatic fluid is of very little, if any, value for making a diagnosis or guiding treatment. The results of treatment of chronic prostatitis by prostatic massage only, are as good as those obtained by massage plus nitrofurantoin. Acute and subacute prostatitis responded well to nitrofurantoin, and there seemed less likelihood of recurrence when the drug was continued in small doses for four weeks.*

ONE OF THE CRITERIA which is used to diagnose prostatitis is an estimate of the number of leukocytes in the prostatic fluid. The common method of making this estimate is to examine under the high dry power of the microscope a wet mount of the prostatic fluid covered by a cover slip and record the approximate number of cells in the field.

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The nitrofurantoin (Furadantin, Eaton) used in this study was furnished by the Eaton Laboratories, Norwich, New York.

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In order to determine whether or not such an estimate was correct, we made a count on a blood counting chamber and compared this with the rough estimate made by a quick glance at the wet mount. This comparison showed a significantly close correlation between the estimate and the count (Chart 1). It is therefore accurate enough for all practical purposes to estimate the number of pus cells in prostatic fluid; an accurate count is not necessary.

Comparison of cell count with symptoms. Some urologists do not believe that the number of leukocytes in prostatic fluid is even a rough estimate of

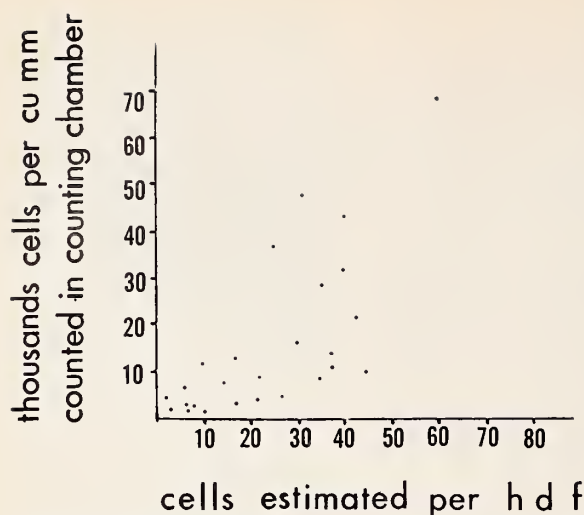


Chart 1.—Comparison of a quick estimate of pus in prostatic fluid with an accurate count of cells (hdf = high dry field).

TABLE 1.—Correlation Between Severity of Symptoms and Number of Pus Cells in Prostatic Fluid

Cells per high dry field	Cases	Symptoms					
		Mild		Moderate		Severe	
		Num-ber	Per Cent	Num-ber	Per Cent	Num-ber	Per Cent
< 15	22	12	55	8	36	2	10
15-30	35	17	49	16	45	2	6
30-50	26	10	38	11	42	5	20
> 50	12	4	33	7	60	1	7
Total	95	43	50	32	38	10	12

the severity of the infection and that the presence of cells is not a criterion in the diagnosis of prostatitis. In order to determine whether or not this is true, a comparison of the cell count with the symptoms was made (Table 1). It was found that the number of pus cells in the prostatic fluid did not correlate with the severity of symptoms. Gartman has reported a similar conclusion.² There are many patients who continue to have a count of more than ten cells per field for many months but who have no symptoms.

Culture of urine and prostatic fluid. An effort was made to determine if possible whether or not a culture of the urine or of prostatic fluid is of value

in making a diagnosis. The second portion of voided urine was cultured for bacteria. The prostate gland was then massaged, and a subsequently voided specimen of urine which contained prostatic fluid, was cultured for bacteria. Sixty such double cultures were done. In 35 of them, both cultures were positive for bacterial growth and in eight of these the growth in the prostatic fluid was heavier than that in the urine. In only seven of the 60 double cultures was the urine sterile and the prostatic fluid positive. There were four, surprisingly, in which the pre-massage urine was positive and the prostatic fluid sterile. In only 16 of 80 positive cultures were there more than 100,000 colonies per milliliter. Thirty-four of the 80 showed less than 1,000 per milliliter and in these instances the bacterial growth was probably due to contamination.

Considering the results of this study on the culture of organisms from prostatic fluid, it is our opinion that doing a culture to make a diagnosis or to guide treatment is not valuable enough to be worthwhile. The contamination rate is high, as evidenced by the large number of cultures of less than 1,000 organisms per milliliter.

Effect of nitrofurantoin on cultures. Fifteen patients were studied by cultures of urine and prostatic fluid before and after administration of nitrofurantoin. Of the urine specimens voided before prostatic massage, eight showed a definite decrease in number of organisms cultured compared with specimens taken before nitrofurantoin was given. Six remained the same and one showed an increase. Of the specimens taken after prostatic massage, which contained both urine and prostatic fluid, 11 showed a decrease, three were the same and one showed an increase.

Rectal palpation. The consistency, contour and size of the prostate gland is a criterion used in the diagnosis of prostatitis. The acute stage is recognized by the enlarged, tense and tender gland as palpated through the anterior rectal wall. When the gland is irregular, firm in some areas and softer in other places, the infection is considered subacute. Sometimes subacute prostatitis cannot be distinguished by rectal palpation from prostatic carcinoma. In chronic prostatitis, without accompanying benign hypertrophy or other prostatic disease, the

TABLE 2.—Comparison of Results of Treatment by Prostatic Massage Only, with That by Massage Plus Nitrofurantoin

State of Disease	Total	Relieved		Improved		Same		Worse	
		Num-ber	Per Cent	Num-ber	Per Cent	Num-ber	Per Cent	Num-ber	Per Cent
Chronic—									
Prostatic massage only	40	16	40	20	50	3	7.5	1	2.5
Massage plus Nitrofurantoin	21	4	20	9	48	6	32	—	—
Acute and subacute—									
Prostatic massage only	0	—	—	—	—	—	—	—	—
Massage plus Nitrofurantoin	9	4	44	4	44	1	11	0	—

TABLE 3.—Comparison of Results of Treatment by Prostatic Massage Only with Massage Plus Nitrofurantoin—Amount of Pus in Prostatic Fluid

Total Cases	Cells Decreased		Cells Same		Cells Increased	
	Num-ber	Per Cent	Num-ber	Per Cent	Num-ber	Per Cent
Massage only	40	33	82	2	5	5
Massage and nitrofur. 38		29	80	3	7	6

gland is not enlarged and is usually slightly irregular and firmer than normal.

There is a definite correlation between symptoms and the acuteness of the infection. In the acute stage the patient has frequency, urgency, difficult urination, pain in the region of the prostate gland and fever. Subacute prostatitis causes similar but less severe symptoms. When the infection is chronic, there is mild urgency, frequency, slight aching in the prostate gland and sometimes urethral discharge. In the cases we studied there were nine cases of acute or subacute and 61 of chronic prostatitis as diagnosed by rectal palpation. In most of these the symptoms were more severe in the acute and subacute and mild in the chronic.

Treatment

In order to determine the effect of treatment with nitrofurantoin (Furadantin®) we compared a series of 40 patients with chronic prostatitis who were treated by prostatic massage only, with another series of similar patients who were given prostatic massage and also nitrofurantoin. Those patients who had chronic prostatitis were relieved of their symptoms as readily by prostatic massage only as by the combination of massage and the anti-infection drug (Table 2). Pus content of prostatic fluid was reduced approximately the same in those patients who had prostatic massage only as in those who had prostatic massage plus nitrofurantoin (Table 3). There were no patients with acute and subacute prostatitis who were not given some anti-infection drug. Therefore there is no control series in this group (it would in our opinion be unwise to withhold anti-infection drugs from patients with acute

TABLE 4.—Side Effects of Nitrofurantoin in 38 Patients

Effect Observed	Fre-quency
Nausea and/or vomiting	6
Chills, fever and sweating	5
Dizziness	4
Headache	3
Pain and aching in joints	3
"General discomfort"	2
Epigastric pain	1
Hives	1

and subacute prostatitis.¹⁾ The relief of symptoms was, however, good in all patients who had acute and subacute prostatitis who were given nitrofurantoin. From our observations in this study, it is our opinion that there is less likelihood of recurrence of symptoms in acute and subacute cases when the anti-infection agent is continued in small doses for a period of four weeks.

In our opinion the best treatment regimen for patients with acute or subacute prostatitis is 50 mg of the drug four times a day for one week, then 50 mg twice a day for three more weeks. The rate of recurrence was less following this regimen than when only one week's treatment was given. Prostatic massages should be continued once a week for about six weeks, then the interval between treatments gradually increased until, at the end of six months, treatment can be discontinued in most cases.

Side effects of nitrofurantoin. In two of 38 cases in this series, the drug was discontinued because of rather severe side effects. Fourteen of the remaining thirty-six patients showed definite reactions due to the drug, and in two others there were questionable side effects (Table 4). Some patients had more than one reaction. The drug was more effective in clearing up infections in patients who had reactions than in those who did not.

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Serologic Diagnosis of Syphilis

Use of the *Treponema pallidum* Immobilization (TPI) Test and the Fluorescent Treponemal Antibody (FTA) Test

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■ *Comparative data from four different laboratories on the TPI and FTA tests on VDRL-reactive sera from patients with no symptoms of syphilis showed agreement of results of the FTA test with those obtained with the TPI test (the reference test) varying from 71 per cent to 112 per cent.*

The FTA test is complex and requires additional research before its use as a routine public health laboratory procedure can be recommended. The TPI test appears to be unequivocally the test of choice for the diagnosis of late and latent syphilis.

FIFTY YEARS AGO Wassermann described a complement-fixation test for syphilis in which tissue extracts of human fetal syphilitic livers containing *Treponema pallidum* were employed as the antigen. In this last half century thousands of patients have been treated for syphilis who did not have the disease and, on the other hand, a lesser number with the disease have remained untreated due to the great confusion in its serologic diagnosis. Yet, today we are still searching for a simple dependable test for the laboratory diagnosis of syphilis. Significant progress has been made, however. With the development of the *Treponema pallidum* immobilization (TPI) test in 1949 by Nelson and Mayer,¹⁰ the shortcomings of the non-treponemal tests became evident, and it is now known that they serve only as screening tests. During the last decade in our laboratory the percentage of biologic false positive (BFP) reactors among a total of 32,000 TPI tests has increased

from 54 per cent to 71 per cent,⁴ which is indicative of the magnitude of the problem.

Since the TPI test was described, 22 other treponemal tests have been developed. In general, each has been reported as a simple and inexpensive procedure with sensitivity and specificity equivalent to that of the TPI test. The majority of such tests have been short lived, however, when subjected to the rigor of routine use in the public health laboratory.

The latest developments in the treponemal tests are a series of fluorescent treponemal antibody (FTA) tests. They are modifications of the original FTA test described by Deacon, Falcone and Harris,⁵ in which non-living *T. pallidum* is mixed with the patient's serum on a slide, following which an anti-human globulin labeled with fluorescein isothiocyanate is applied. In the presence of antibody, the spirochetes exhibit a fluorescence when observed with a fluorescent microscope and a special fluorescent lamp.

The present report includes preliminary studies with the FTA in our laboratory and a review of comparative recent studies of the TPI and FTA tests by three other investigators.^{3,7,9,12} employing

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VDRL* reactive serum from patients with no clinical manifestations of syphilis.

Outline of TPI and FTA Tests

To date no simple treponemal test has been developed. The TPI test requires maintenance of a virulent *T. pallidum* infection in VDRL negative rabbits, harvesting of the spirochetes and subsequent suspension in a special medium. The spirochetes must be maintained free from contamination and under essentially anaerobic conditions at all times. Positive reaction is determined by immobilization of *T. pallidum*, as observed under the darkfield microscope 18 hours after incubation of the patient's serum with the spirochetes *in vitro*, in the presence of complement. With proper controls, of 25 spirochetes counted with a darkfield microscope, the numbers of motile and non-motile organisms are determined. The ratio of motile to non-motile organisms is the basis for the interpretation of the test.

The FTA test requires a suspension of killed virulent *T. pallidum* which is mixed on a slide with the patient's serum and subsequently an anti-human globulin that is labeled with fluorescein isothiocyanate is added. After special fixation and fluorescent staining, the slide is examined for spirochetes coated with fluorescent antibody. A count is made of the spirochetes. Those that show no fluorescence and 1+ fluorescence are considered non-reactive, while those that are fluorescent to a degree designated as 2+, 3+ and 4+ are considered reactive. In the FTA-200 test the serum is diluted 1:200 and in the FTA-ABS (absorbed) the serum is diluted 1:5 with a heavy suspension of sonically disrupted *T. pallidum*, Reiter strain.

From these brief descriptions, one can readily appreciate that the TPI and FTA tests are for well-trained personnel only.

Present Study

The TPI test described by Nelson and Mayer,¹⁰ with the modifications of Magnuson and Thompson,⁸ Thompson and Magnuson¹¹ and by Boak and Miller¹ now in use in our laboratory for ten years, was employed. The FTA test was carried out in four different laboratories according to the method recommended in *Laboratory Procedures for Modern Syphilis Serology*, 1962.⁶ Fluorescent spirochetes (as microscopically observed) varying from 2+ to 4+ intensities were reactive and those ranging from no fluorescence to a 1+ fluorescence were considered non-reactive.

One hundred four specimens of serum from patients reactive to VDRL test and considered to be "diagnostic problem sera" were subjected to the TPI and FTA tests. The sera were received from the Los Angeles County Health Department and from physicians throughout the State of California.

Results

Thirty-five (33.6 per cent) of the 104 sera were reactive to the TPI test and 69 (66.4 per cent) were non-reactive. Twenty-nine (27.9 per cent) were reactive with the FTA test and 75 (72.1 per cent) were non-reactive. Thus, only 29 (82.9 per cent) of the 35 TPI-reactive sera and 65 (94.2 per cent) of the 69 TPI non-reactive sera were respectively reactive and non-reactive by the FTA test.

The comparative data on the TPI and FTA tests by the four laboratories are representative of recent studies on sera from patients with reactive non-treponemal tests submitted for the TPI test. The results of the reactive TPI tests range from 33.6 per cent by Laboratory II to 57 per cent by Laboratory III. The percentages in the FTA tests range from 28.4 per cent by Laboratory I to 56 per cent by Laboratory IV employing the FTA-ABS test (Table 1). In the case of the two laboratories, III

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TABLE 1.—Comparative Data from Four Laboratories on TPI and FTA Tests on STS-Reactive Specimens

Year	Investigator	Laboratory	Number of Specimens		TPI		FTA		Per Cent Agreement of FTA with TPI
					Number	Per Cent	Number	Per Cent	
1961	Wilkinson ¹²	I	144	R	58	40.2	41	28.4	71
				NR	86	59.8	103	71.6	
1963	Miller, Whang, Carpenter ⁹	II	104	R	35	33.6	29	27.9	83
				NR	69	66.4	75	72.1	
1963	Leibovitz, Oberhofer, Meachan, and Diestelhorst ⁷	III	705	R	433	57	367†	52	95
				NR	332	43	338†	48	
1964	Bradford, Bodily, Puffer, Ketterer ³	IV	200	R	99*	50	77†	39	77
				NR	92	46	123	61	
			200	R	99*	50	111‡	56	112
				NR	92	46	89	44	

*9 sera inconclusive. †FTA-200 test. ‡FTA-ABS test.
R=Reactive. NR=Non-reactive.

and IV, that used the FTA-200, the percentage of reactors was 52 per cent for the former and 39 per cent for the latter. Agreement of the FTA-200 and FTA-ABS with the TPI test in the four different laboratories was respectively 71 per cent, 83 per cent, 77 per cent (FTA-200), 95 per cent (FTA-200), 112 per cent (FTA-ABS). The specificity of the tests was more uniform.

Discussion

Deacon, Falcone and Harris⁵ described the FTA test for syphilis in 1957, and several modifications of the test have been recommended during the last four years. The FTA-ABS modification of the test appears to have some promise, but further research and experience are essential before it can be accepted as an approved procedure for the diagnosis of syphilis. The TPI test, on the other hand, has been in use for ten years and a background of knowledge and its dependability has been established. In our laboratory the correlation of the results of the TPI test with the clinical status of the patient has been a most gratifying experience. This is especially borne out by the fact that among over 1,000 untreated BFP pregnant women with reactive VDRL sera, none delivered a syphilitic infant. No doubt errors in testing 32,000 sera have occurred but none has come to our attention and hundreds of these cases have been discussed with the patients' physicians.

A comparison of the results of TPI tests carried out in other laboratories has been difficult because of the use of different media for suspending and maintaining the spirochetes, the use of either fresh or lyophilized complement and finally because of counting the spirochetes and interpretation of the test. No standardized technique has been established. Likewise, the FTA tests are not uniformly carried out, especially as they are in a developmental stage.

With few exceptions, reports of the FTA tests have been made on sera from so-called normal persons and on sera from patients with early and late syphilis. Here again it is difficult to evaluate the data because of differences in the selection of cases, and lack of standardized technique. Such tests are necessary but in this report we are concerned with the routine comparative use of the test on so-called problem sera submitted for the differentiation of BFP reactors for syphilis from those due to specific infection with *T. pallidum*. Early syphilis in most instances can be recognized and treated effectively. The main problem is to lift the stigma of syphilis from persons with reactive serologic tests for syphilis who do not have the disease.

In most reports the FTA is designated as a simple procedure. In our limited experience the test has not proven so. The major problems with the FTA

test include adherence of sufficient number of *T. pallidum* to the slide, non-specific fluorescence, unavailability of satisfactory anti-human globulin and the necessity of its rigid laboratory control over each lot. Fluorescent microscopy likewise requires experience, expensive equipment and special training. The interpretation of tests is blurred by subjectivity of the microscopist. Another inherent difficulty is the differentiation of *T. Pallidum* from detached fluorescent coils in the tails of spermatozoa. Leibovitz, Oberhofer, Meachan and Diestelhorst⁷ recommended performing the FTA test on paired specimens, which requires duplication of effort.

In our opinion the test of choice remains the TPI test even though it may be slightly more expensive. Its record for sensitivity and reproducibility of results over the past decade make it the dependable reference test for syphilis.

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Abdominal Electromyography During Micturition

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■ *Electromyographic tracings during micturition were obtained from the abdominal muscles of volunteer men by means of silver cup electrodes.*

Electromyographic tracings of cough, strain and volitional and sphincter contraction were made before and after voiding on desire and on volition.

While the EMG activity of cough and strain remain unchanged, that of volitional and sphincter contraction underwent various changes following both types of voiding.

Before or at the onset of micturition on desire the EMG remained unchanged in ten of 14 subjects, but with cessation of micturition it remained unchanged in only seven subjects while it increased in the remaining seven.

Before or at the onset of micturition on volition the EMG remained unchanged in seven of nine subjects, and with cessation of micturition it remained unchanged in eight of the nine subjects.

Interruption of micturition increased the EMG activity of six among seven subjects, but resumption of micturition did not alter the EMG in five of the seven subjects.

Great variations existed in regard to urinary volume and flow rate.

It is proposed that there is an association of movements between the abdominal and pelvic floor muscles and that these movements are more conspicuous with cessation and interruption than with onset of physiological micturition.

THE ROLE of the striated musculature during micturition in general and that of the abdominal muscles in particular has been a much discussed and controversial subject, ever since opinions were expressed by LeGros-Clark in 1883^{1,4} and Genouville in 1894.⁸ Recordings of muscle activity were then not done; conclusions were drawn from introspection or other

observations, but doubt existed whether or not the abdominal muscles partake in the act of voiding; LeGros-Clark^{1,4} denied it flatly; Genouville⁸ believed that these muscles come into play during micturition on volition or command but not on desire.*

Electromyographic surface recordings of the abdominal muscles of enuretic persons have been performed by Ditman and Blinn.⁴ The abdominal muscles did not contract when the individual was

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*The distinction between *volition* and *desire* as used here was subjective: *volition*, entirely at the wish of the subject without sense of urgency; *desire*, on physical reminder of necessity.

deeply asleep (as assessed by simultaneous electroencephalographic tracings) but did contract when the patient was in a state of wakefulness.

One of us³ started to study the electromyographic activity of the abdominal muscles of neurologically and urologically intact persons by means of cup rather than needle electrodes, during micturition on desire and volition. The tracings were made with the subject in the supine position. Inasmuch as the physiologic posture of the adult male is upright during micturition, this position was chosen for the present study.

Material and Methods

A total of 17 adult male volunteers were subjected to a total of 29 observations. Twelve subjects were between 20 and 40 years of age; five were above 40. If micturition on desire was to be tested, the individual was instructed to hydrate himself well before the electromyographic recording; no hydration was advised when micturition on volition was tested. Before and after micturition, the effects of cough, of strain and of volitional contraction of the pelvic floor musculature on the electromyogram of the abdominal muscles were recorded. From the onset of the test the individual was so positioned as to be able to urinate freely into the vessel without supporting it or his penis, thus avoiding movement artifacts.

Electromyographic recordings were made on a Grass model IV-B electroencephalograph machine, using eight of the available 16 channels. Gains used were 1 centimeter per 100 microvolts for bipolar leads and 1 centimeter per 150 microvolts for "monopolar" leads. The paper speed was 3 centimeters per second in all recordings. Standard electroencephalogram silver cup electrodes and conducting salt paste were employed because of their inherent comfort and ease of application. The electrodes were held in place by a recently available perforated plastic adhesive tape (Bauer and Black) which allows good adhesion in the presence of salt paste or perspiration moisture. Four "active" electrodes were placed on the anterior abdominal wall, overlying the right and left, superior and inferior, segments of the abdominis rectus muscles. A relatively "indifferent" reference electrode for monopolar recording was placed over the right iliac crest or the anterior/superior iliac spine.

Four bipolar electromyograph leads were derived from the four active electrodes, and four "monopolar" leads were recorded simultaneously from these electrodes plotted against the iliac "indifferent" electrode. Electrocardiographic potentials intruded upon all recordings of these leads. No attempt was made to suppress them through electronic tech-

niques, since they did not obscure the electromyographic potentials to a critical extent.

Instantaneous and continuous recording of the urinary output was first attempted by having the urinary stream intersect two wire grids, which were connected in a bridge circuit to measure the electrical resistance of the urine. This method had to be abandoned because of electrical interference in the electromyograph channels, which occurred whenever the stream was continuous enough to constitute an electrical connection between the subject's penis and the inputs of the electroencephalogram machine. All methods of grounding, shielding, voltage isolating and "floating the inputs" failed to resolve this problem. A metal can, used as a urinal in some of the early experiments, was noted to respond acoustically to the urinary stream. This response was used as a signal source, eliminating all electrical connection between the subject and the electroencephalogram machine. In lieu of a contact microphone, the can was fitted with a high-voltage-output Rochelle salt crystal phonograph cartridge. A copper wire soldered to the side of the can was inserted into the needle receptacle of the cartridge.

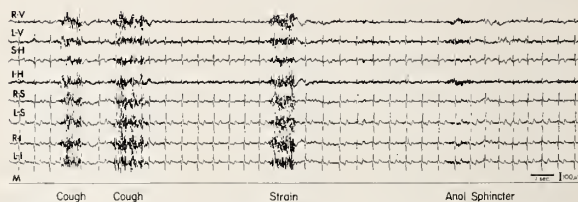


Figure 1.—The top eight channels of recording are abdominal electromyograms, four channels bipolar and four channels monopolar. Bipolar electrode pairs are designated as follows: RV=right vertical, LV=left vertical, SH=superior horizontal, and LH=inferior horizontal. The monopolar leads are designated according to quadrants: RS=right superior, LS=left superior, RI=right inferior, and LI=left inferior. The ninth channel displays signals from the urinary flow transducer, as described in the text.

The subject was a man 55 years of age. The tracings show high amplitude burst of abdominal muscle activity accompany coughing and straining. Voluntary contraction of the anal sphincter is accompanied by less intense but distinct bursts.

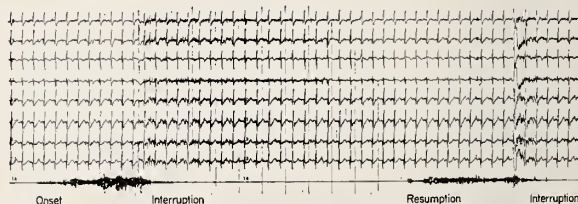


Figure 2.—The subject was a 23-year-old man. With the onset of the urinary stream (bottom channel) and during urination as represented by the thickened areas along the lower line, the existing EMC activity of the abdominal muscles diminishes, only to increase above the resting level upon interruption of micturition. These events are illustrated twice.

The wire leads from the cartridge were then taped to the side of the can to stabilize the cartridge mechanically and to impose a certain amount of mechanical damping. The signal output from the cartridge consisted of many high-frequency components which could not be recorded fully by the electroencephalogram oscillograph. In order to reduce this high-frequency information to an "energy envelope" which would accommodate the electroencephalogram machine's frequency capabilities, a signal-conditioning circuit was employed. This consists of a semiconductor diode rectifier and a pi type filter, shunted by a resistor of proper value for imposing a decay time-constant appropriate to rapid "on and off" events within the urinary stream. The voltage from this network is more than adequate for the electroencephalogram amplifier. Recorded on a ninth channel of the electroencephalogram machine, the signal appears as a "spiky" pattern, the amplitude and density of which vary

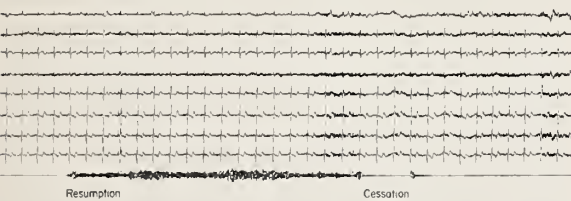


Figure 3.—The subject was a man 55 years of age. These tracings demonstrate that the EMG activity may not change on resumption of an interrupted micturition, but increases during the phase of cessation of micturition. The urinary flow recording (the thickened areas in the lower line) displays two spurts, each preceded by an EMG increase. Thereafter, a few drops of urine are recorded.

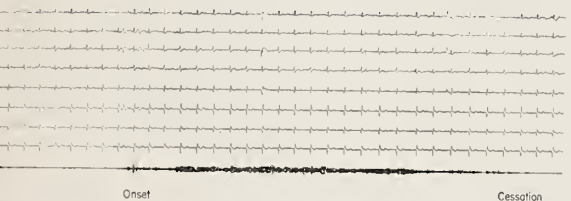


Figure 4.—The subject was a man 30 years of age. A "placid" micturition (duration shown by thickened area of lower line) is exemplified by absence of any EMG changes.



Figure 5.—The subject was a 31-year-old man. Onset and resumption of micturition (duration shown as thickened areas of lower line) are not accompanied by changes in EMG activity. However, pronounced increases coincide with and outlast interruptions of urinary jets.

directly with the flow rate and projectile velocity of the urinary stream. Individual drops or spurts of urine are clearly recorded.

This method allows an artifact-free recording of abdominal electromyographic activity, along with an exact measure of onset and duration of micturition and an approximate measure of "strength" of the urinary stream. The method also has an advantage of permitting the subject to direct the stream in a normal way, at a relatively unrestricted target.

Observations

Twenty-nine examinations were done in 17 subjects. Micturition on desire was observed in 14 subjects (19 examinations); micturition on volition or command was observed in nine subjects (10

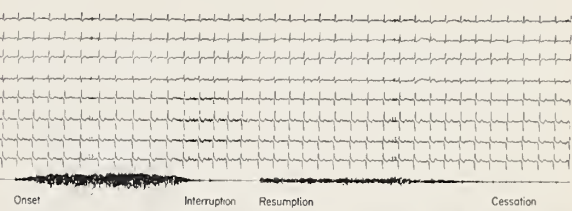


Figure 6.—The subject was a 30-year-old man. No EMG changes accompany onset, resumption and cessation of micturition; but a clear increase marks the interruption of the stream. The periods of micturition are shown by the thickened areas along the lower line.

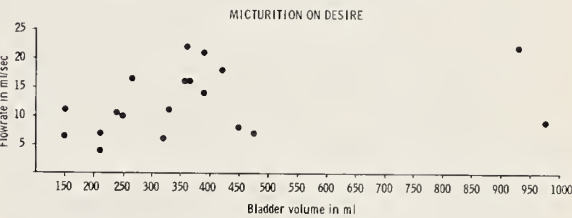


Figure 7.—Scattergram of micturition on desire.

MICTURITION ON VOLITION

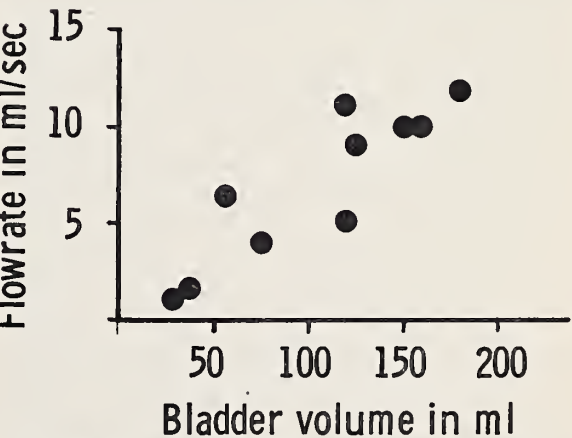


Figure 8.—Scattergram of micturition on volition.

examinations); and both forms of micturition were studied in five subjects.

The electromyogram (EMG), associated with cough, abdominal strain and volitional anal sphincter contraction, changed rarely when tracings before micturition were compared with those after micturition.

With micturition *on desire* the following was observed: The "cough" EMG before micturition was positive in 18 examinations (Figure 1) and was not tested in one. After micturition, it remained unchanged positive in 14 examinations and was not tested in five examinations.

The "strain" EMG before micturition was positive in 18 examinations and was not tested in one. After micturition, it remained unchanged positive in 16, increased in one and was not tested in two examinations.

The "anal sphincter" EMG before micturition was positive in 14 examinations, was equivocal in one, was zero in one and was not tested in three examinations. After micturition, it remained unchanged positive in seven examinations, was equivocal in two, remained zero in one, was not tested in one, increased in five and decreased in three examinations.

With micturition *on volition* the following was observed: The "cough" EMG before micturition was positive in ten examinations. After micturition, it remained unchanged positive in eight and was not tested in two examinations.

The "strain" EMG before micturition was positive in ten examinations. After micturition, it remained unchanged positive in eight, increased in one and decreased in one examination.

The "anal sphincter" electromyogram before examination was positive in six examinations, was equivocal in three and was absent in one examination. After micturition, it remained unchanged positive in four examinations, remained zero in one, increased in one and decreased in four examinations.

Onset and cessation of micturition *on desire* (14 subjects) altered the EMG as follows: Onset: EMG changes appeared in four subjects, no EMG changes in ten subjects. The EMG increased in two subjects, increased for eight seconds and decreased for three seconds before voiding in one, and decreased during voiding in one subject (Figure 2). Cessation: The EMG increased in seven subjects (Figure 3) and remained unchanged in seven.

Onset and cessation of micturition *on volition* (nine subjects) altered the EMG as follows: Onset: The EMG increased in two subjects and remained unchanged in seven subjects. Cessation: The EMG increased in one and remained unchanged in eight subjects (Figure 4).

Volitional interruption, resumption and ultimate cessation of micturition were examined in seven subjects; in four subjects micturition was studied on desire, and in three on volition. The EMG increased in three of the four subjects with interruption of micturition on desire (Figures 5 and 6) and in all three subjects with interruption of micturition on volition—that is, six of the seven subjects showed increased EMG changes with interruption of micturition. The EMG remained unchanged in three of the four subjects with resumption of micturition on desire, and in two of the three subjects with resumption of micturition on volition—that is, five of the seven subjects showed no EMG changes with resumption of micturition.

It should be noted that the same individual who showed an increased EMG with onset and resumption of micturition showed no increase with interruption and cessation of micturition. Two subjects showed an increased EMG with interruption but not with cessation, and one showed an increased EMG with interruption and cessation of micturition.

The volumes and flow rates varied greatly; the volume at micturition on desire ranged from a minimum of 150 ml to a maximum of 975 ml; the flow rate ranged from a minimum of 6 ml per second to a maximum of 22 ml per second. (Figure 7). The volume at micturition on volition ranged from a minimum of 30 ml to a maximum of 180 ml; the flow rate ranged from a minimum of 1.2 ml per second to a maximum of 12 ml per second (Figure 8). One subject had the same volume (150 ml) with both micturitional types: desire and volition. Of the seven subjects with 18 examinations only three showed a consistent trend of ratios of volume to rate of flow. Only three subjects reached a flow rate of 21 and 22 ml per second during micturition on desire; one of these had a volume of 930 ml at the other extreme, another individual with a volume of 975 ml had a flow rate of 9 ml per second.

Discussion

The aim of this study was to maintain, as much as possible, physiological conditions during the observations. We endeavored to examine events as they take place naturally rather than to investigate micturition under such pathological conditions as obtain from paralysis of parts or all of the striated musculature associated with this act. (Investigations of simulated conditions of that kind have been done by other observers by either pudendal nerve block¹¹ or by curarization.*) For this reason, we abstained from using needle electrodes¹ because they present a more disturbing factor than cup

*References Nos. 12, 13, 5, 17, 15.

electrodes: for the same reason we examined the subjects in the upright rather than in the supine position, as was done in a scout study.³ Even with all precautions, the process of micturition cannot be called completely physiologic because of the physical and psychological influences unavoidable in the experiment. Thus, two persons whose electromyographic tracings were readily obtained had to be eliminated because they were unable to urinate while being watched by the necessary observer in the control room.

Tracing the EMG effect with cough, strain and anal sphincter contraction (Figure 1) was originally intended to establish a base line reading with which EMG changes could be compared as they might occur at onset, during and with cessation of micturition. While it was not surprising to obtain a good EMG tracing with cough and strain, it was astounding that this occurred also from anal sphincter contraction. This points to an associated facilitation of pelvic floor and abdominal muscle movements. Undoubtedly this varies between persons; it was present in 11 of the 14 subjects, was consistently absent in one and equivocal in two subjects. The EMG tracings with cough and strain after micturition hardly changed from those before micturition, whether it was micturition of desire or of volition. Far more changes were observed in the EMG associated with contraction of the anal sphincter, which was used as representative of the pelvic floor. However, these increases or decreases, following micturition on desire or volition, varied not only between persons but also from one time to the next in the same person, as observed on repeated examination. This tends to confirm the assumption of Petersén and coworkers¹⁵ who, having demonstrated inter-individual EMG variations of these muscles with micturition, suspected intra-individual variation of function of the pelvic floor musculature.

A majority of persons showed no EMG changes at the onset of micturition either on desire or volition. Here, too, intra-individual variations were conspicuous on repeated examinations of two subjects, who showed an inconsistent increase of the EMG activity at the onset of micturition on desire. A decrease of the EMG activity (Figure 2) was found only in one: an increase followed by a decrease of the EMG activity was seen in another individual. This points, perhaps, to an associated inhibition of pelvic floor and abdominal muscle movements. Thus, it would appear that the phasic contraction of the abdominal muscles plays a minor role in physiologic micturition on desire; this was also observed in the previously reported scout study³ of subjects in supine positions. Abdominal muscle activity was then not studied sufficiently with micturition on volition. It now has been shown that such phasic contraction of

the abdominal muscles is rare also when the onset of micturition is volitional.

Cessation of micturition on desire was accompanied by an increased EMG activity in one-half of the 14 subjects. At times this could be correlated with the expulsion of the last urinary spurts (Figure 3) but in other instances it could not be correlated. This phenomenon of correlation was also observed in two of eight subjects of the scout study.³ The fact that it occurred in only one of the nine subjects with cessation of micturition on volition suggests perhaps that detrusor activity and abdominal muscle activity are differently associated during micturition on desire and micturition on volition. The former is set off as a reflex response to the stimulus of detrusor stretch. (The bladder volume ranged from 210 to 930 ml.) The events taking place at expulsion of the last portion of urine perhaps can be compared with those during the last phase of labor, when reflex contractions of the abdominal muscles aid the contraction of the hollow viscus. Micturition on volition is induced by cerebral "recall" which triggers the associated movements of detrusor contraction and pelvic floor relaxation.⁹ Thus, no stretch stimulus ever reaches the level of awareness, because it does not exist. An excellent sample of "placid" micturition on volition without any EMG changes at the onset or cessation is shown in Figure 4.

In pursuing the study of association between the pelvic floor and abdominal musculature, seven subjects were examined with interruption and resumption of micturition on desire (four subjects) and volition (three subjects). In concurrence with the abdominal EMG findings, accompanying volitional anal sphincter contraction, six of the seven subjects showed also an increased EMG activity on interruption of micturition (three on desire, and all on volition). One of the four subjects had also an increased EMG activity when micturition on desire ceased (Figure 5); the recording of the urinary stream suggests that this event coincided with the contraction of the ischiocavernosus and bulbocavernosus muscles. Two persons did not show this effect, although both had an increased EMG activity with interruption of micturition on desire (Figure 6). In one subject in whom there was increased EMG activity at the onset of micturition on desire, there was no such increase on interruption of micturition. In one person in whom onset of micturition on volition was not accompanied by increased EMG activity, resumption of micturition was.

In summing up all these findings it would then appear that phasic contractions of the pelvic floor cast their shadow upon the abdominal muscles, while relaxation of the pelvic floor is far less frequently associated with phasic changes of the ab-

dominal musculature. The logical conclusion—not actually tested here—would be that the intra-abdominal pressure should increase when both the abdominal muscles and the pelvic floor muscles undergo phasic contractions. The various forms of micturition, “squirting” or “intermittent,” as described by Petersén and coworkers,¹⁵ proceed in spite of demonstrable EMG activity of the pelvic floor muscles; it would have been interesting if EMG of the abdominal musculature had been recorded. A study combining EMG activity of the abdominal and pelvic floor muscles would be of greatest interest, provided cup electrodes were used instead of needle electrodes.¹

The flow rate presented here, cannot be compared with the curves obtained on uroflowmetry, but represents only the rate of the total urine volume over the total time. As in the preceding scout study, the majority of flow values were below the proposed average of 20 ml per second¹⁰ or 23 per second¹⁶; they were also below the averages reported by Drake.⁶ They compare, perhaps, with the averages observed in normal women.² That great variations of the maximum voiding rate exist² could be confirmed in this study. On repeated examination of the same seven persons, three showed consistency between volume and flow rate—that is, an increased flow rate with a greater volume⁷—but four did not show such consistency.

Micturition on desire was differentiated from that on volition by the subjective sensation of the patient rather than by the volume, although the volume on volition stayed below 200 ml. Conversely, volumes of less than 200 ml elicited the sensation of desire to micturate in two of the persons in the study. How much psychic stimuli play a role is illustrated by the subject who on one occasion urinated on volition, on other occasion on desire—the volume of urine being the same both times.

As suggested in the scout study of males in the supine position, it seems reasonable to assume that the flow rate in the upright position is also subject to psychic factors. It would be hard to assess in which instances embarrassment has been overcome by “training.” This embarrassment was also conspicuous in the relatively long time interval between the command to void and the recorded urinary flow, irrespective of the type of micturition, desire or volition. In summary, this study confirms the findings of other investigators,¹⁶ namely that variations of the flow rate exist on repeated determinations.

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Shoulder Pain

Diagnosis and treatment of injuries to soft tissues

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■ *Many patients with injuries to the shoulder suffer prolonged disability, economic distress and psychological anguish because the diagnosis of their difficulties is made too late or not at all.*

Immobilization of an injured shoulder, whether by guarding on the part of the patient or as a part of treatment, can do permanent harm.

Shoulder injuries involving soft tissue damage are more common than bony injury but the diagnosis is more difficult. In this group are included tears of tendons, capsular tears, acromioclavicular cartilage injuries, "frozen shoulders," and ligamentous damage. The application of roentgenographic techniques to outline soft tissue structures inside the joint by the use of water-soluble iodized dyes improves diagnostic accuracy.

Pessimism as regards treatment of soft tissue damage in the shoulder region is frequently paralleled by inexperience.

INDUSTRIAL INJURIES in which the patient has complaints referable to the shoulder are relatively common, although the precise incidence is unknown. Yet many patients with such injuries suffer prolonged disability, economic distress and psycho-

logical turmoil because diagnosis is made too late or not at all.

Shoulder injuries involving soft tissue damage are even more common than the more obvious bony injuries. The diagnosis in such cases is more difficult but is of the utmost importance to intelligent, specifically directed treatment. Frequently a physician unsophisticated in such matters bases his diagnosis and treatment on the so-called "negative

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x-ray" characteristics of the injury to the exclusion of all other factors; and the shoulder pain is all too frequently labeled "functional" or the injured workman a "malingerer."

Pessimism as regards treatment of soft tissue damage in the shoulder region is often paralleled by inexperience. Early diagnosis and early, well-directed treatment is the best insurance that the patient will be restored to his former work.

Rotator Cuff Tears

Tears of the supraspinatus, infraspinatus and teres minor are frequently seen following industrial injuries of varying degree. Usually, the patient is in the fifth or sixth decade of life and has undergone attritional, although asymptomatic changes in the rotator cuff over a period of years. The mechanism of injury may be a direct blow, a fall on the outstretched hand, grabbing a beam while falling from a height, or merely prolonged use of the arm overhead. In general, the younger the patient, the more severe the mechanism of injury.

Pain is the chief complaint and is usually noted between 70° and 120° abduction of the arm. It is a fallacy to believe that because a patient has a cuff tear, he will necessarily have limited active range of motion. More than 80 per cent of patients with cuff tears that I have observed had full active range. The patient frequently notes "clicking" or "crunching" in his shoulder on abduction because the retracted cuff is pressed beneath the acromion and the coracoacromial ligament by the bare humeral head. Sometimes he will note paresthesias into the arm and hand due to traction on the neurovascular bundle by the unsupported humerus. Weakness in maintaining elevation is almost universally noted, and difficulty in finding a comfortable resting position at night is common.

The tear may be full thickness (that is, through the entire thickness of the tendon) in which case the shoulder joint will have an abnormal communication with the overlying subacromial bursa. A partial thickness tear may occur, which may be in the substance of the tendon, on the upper or under surface, but does not traverse the entire thickness of the tendon. In such cases, abduction between 70° and 120° moves the "blister" of the partial thickness tear under the coracoacromial ligament and momentary pain is noted.

Passive rotation of the arm while the examiner, standing behind the patient, palpates the greater tuberosity will frequently demonstrate soft tissue crepitus and a palpable defect in the cuff. The patient's hands should be clasped in front of him with the elbows extended and the shoulders forward flexed at 90°, so that the examiner can observe selective atrophy in the supraspinatus or infra-

spinatus fossae. This usually is first apparent about three or four weeks after injury. Strength of the supraspinatus, infraspinatus and teres minor is then tested by asking the patient to maintain abduction at 90° against resistance in external rotation, in neutral position and in internal rotation. Selective weakness can thereby be determined. An injection of 1 per cent procaine into the cuff area may relieve pain and allow full range of motion in the few patients who do not have this range. If full range of motion is not apparent even after procaine injection, a complete avulsion of all the external rotators may be presumed.

Plain anteroposterior x-ray films of the shoulder may reveal sclerosis and subchondral cystification of the greater tuberosity of the humerus. This indicates attritional change in the cuff attachment. In addition, the space between the greater tuberosity and overlying acromion may be diminished, indicating thinning or retraction of the cuff. Arthrograms of the shoulder, using 30 per cent Renograffin® for contrast, are diagnostic of full thickness tears and reveal any abnormality of communication between the shoulder joint proper and the overlying subacromial bursa. Dye traversing around the corner of the greater tuberosity in the bursa indicates a tear. The size of the tear cannot be determined by arthrogram. A positive arthrogram is not in itself an indication for surgical repair.

Complete avulsion of the cuff should be repaired within two weeks after the diagnosis is made. Otherwise, the cuff will retract and fibrosis and atrophy will take place. It is then very difficult or impossible to approximate the torn cuff to the greater tuberosity insertion. Placing the torn cuff in a groove in the humeral head proximal to the normal insertion does not, in my experience, bring about good function. It is usually not necessary to immobilize the arm in a shoulder spica postoperatively. If this is necessary, the suture line is often too proximal. A sling and swath is used for three weeks, after which gentle pendulum exercises are started. Gradual active abduction is started at five weeks, with elevation limited to less than 90° until seven weeks after operation. Abduction beyond this point is carried out thereafter, and resistance is added by the eighth postoperative week. Temporary total disability continues between three and five months following operation. Oftentimes lesser tears do well with rest during the period immediately following injury, with gradual active exercises thereafter. Intra-articular hydrocortone is useful in alleviating pain in partial thickness tears. If pain and weakness persist after three or four weeks, surgical repair should be considered.

Rotator cuff tears are sometimes the cause of persistent pain and shoulder weakness following

anterior dislocations of the glenohumeral joint. Subscapularis tears are sometimes seen following the rare posterior shoulder dislocation. When a tear of the long head of the biceps is diagnosed, the possibility of a concomitant cuff tear should be investigated. In my experience they are companion injuries in 80 per cent of cases. Apparently, the intact cuff serves as a buffer to prevent attritional changes in the long head of the biceps. When the overlying cuff is torn, attritional changes and subsequent tears in the intra-articular portion of the long head of the biceps occurs.

Biceps Lesions

Tears of the long head of the biceps have been discussed, in part, in the preceding section. They usually occur in a tendon that has undergone attritional change. The diagnosis is perfectly obvious, and the condition is characterized by descent of the muscle belly toward the antecubital fossa. Search should be made for associated cuff tears. Repair of biceps tears is not essential. Tenodesis in the bicipital groove, or transfer of the tendon to the coracoid process may be carried out. Temporary total disability usually lasts about eight weeks following repair.

Rarely, the long head of the biceps may subluxate or dislocate from the bicipital groove. The mechanism of injury involves capsular tearing, involving the transverse bicipital ligament. The tendon becomes displaced medially. Again, a cuff tear should be suspected. "Snapping" is present over the bicipital groove on forward flexion and abduction. Fixation of the tendon in the groove is a satisfactory solution.

Bicipital tendinitis or tenosynovitis is an unusual lesion that is characterized by tenderness in the bicipital groove that is accentuated by resisted supination of the forearm. Treatment includes intra-articular injection of steroids and is usually efficacious.

The biceps tendon is sometimes implicated in preventing closed reduction of certain fractures and dislocations about the shoulder. It has been found interposed in posterior dislocation on occasion, and in such cases open operation for relocation is necessary.

Shoulder Dislocations

More than 95 per cent of shoulder dislocations are anterior dislocation at the glenohumeral joint. The remaining 5 per cent are posterior. Recurrence is related to the age of the patient at the time of the first dislocation. If it occurs before the age of 20 years, there is a 90 per cent chance of recurrence. The chance diminishes as the age of first dislocation increases.

Anterior shoulder dislocations result from abduction-external rotation injuries. Closed reduction is readily accomplished with the patient lying prone on a table with the affected arm hanging over the side. Gentle traction on the arm usually relocates the shoulder. A sling and swath is worn for three weeks, after which gentle active motion is started. External rotation is avoided until five weeks following injury. Recurrence is usually due to the capsular damage consequent to initial dislocation. Surgical repair is necessary in recurrent dislocation and the kind of operation should be carefully selected in light of the pathological condition in each case.

It is not unusual to have glenoid labrum tears following forceful external rotation-abduction injuries, without actual dislocation. A patient with persistent complaints referable to the shoulder, soft tissue crepitus and pain on elevation after such an injury, often should have exploratory arthrotomy and rim repair.

Persistent complaints following shoulder dislocation may also mean a coexistent cuff tear. Careful diagnostic search should be made for such a lesion if the circumstances warrant.

Posterior shoulder dislocation, although rare, is extremely important to diagnose early. The mechanism of injury is a blow to the front of the shoulder or an internal-rotation injury. Active external rotation and abduction are impossible. Plain anteroposterior x-ray films may reveal little abnormality, but axillary views and transthoracic lateral views will show the dislocation. Closed reduction under general anesthesia should be undertaken as soon as the diagnosis is made. Immobilization in an Ardenstock device for three weeks is desirable. Active exercises are undertaken thereafter for an additional six weeks until full range is achieved.

Neglected, persistent posterior dislocations are sometimes mistaken for "frozen shoulder." Then each time the therapist passively moves the arm the groove in the anteromedial portion of the humeral head made by the posterior glenoid rim gets bigger. This catastrophe should be avoided by early diagnosis and reduction. Operation with relocation of the glenohumeral relationships and transfer of subscapularis tendon into the humeral head groove may be necessary in late cases. Physical therapy should never be prescribed in any condition unless the diagnosis is established and the therapy will do no harm.

Shoulder dislocations associated with greater tuberosity fractures need not cause undue concern. Reduction of the dislocation usually is accompanied by accurate reduction of the fracture. If, after closed reduction, there is 1 centimeter or more displacement of the greater tuberosity, operation with screw fixation of the tuberosity fragment is indicated.

Acromioclavicular Joint

Dislocation of the acromioclavicular joint with upward riding of the clavicle pulled by the trapezius, and downward riding of the acromion pulled by the deltoid muscle, is associated with rupture of the coracoclavicular ligaments. The deformity is characteristic. The well known "shoulder-pointer" is caused by a blow on the tip of the shoulder. Open reduction with threaded pins for internal fixation across the acromioclavicular joint is desirable. The wires are removed six weeks after operation and temporary total disability usually persists for another month, during which active exercises are encouraged.

Late cases of complete dislocation may be treated by excision of the outer end of the clavicle.

Incomplete luxations are sometimes accompanied by tears of the intra-articular meniscus. Pain is noted at the acromioclavicular joint and is increased on forced adduction of the arm at 90° elevation. Pain is temporarily abolished by local injection of 1 per cent procaine into the acromioclavicular joint. Because of clavicular overhang, the needle must be directed at a 45° angle to enter the joint. Again, excision of the outer end of the clavicle and the damaged meniscus may be necessary to relieve symptoms.

Calcium Deposits

The misnomer "bursitis" has long been applied to calcium deposits in the rotator cuff. By what mechanism they are formed is unknown, but the condition may be aggravated by industrial activity. Acute tenderness over the tendinous deposit develops in the acute phase. Redness and local heat are sometimes apparent also.

Roentgenographic evidence of calcium in the cuff does not necessarily relate to shoulder symptoms. Not infrequently, calcium deposits are incidental to other radiographic observations. When the deposit is deep in the substance of the tendon, it is usually asymptomatic, but when, by accretion, it approaches the vascular and well innervated subacromial bursal floor, symptoms become acute. Spontaneous rupture of the deposit into the bursa is accompanied by relief of pain. Needling of the tendinous deposit merely serves as an artificial means of rupturing the deposit into the bursa where it can be readily absorbed.

The location of the deposit can be determined by taking x-ray films from selected points of view. Anteroposterior films in external rotation show a supraspinatus deposit on top. Films from the same position with the joint in internal rotation bring infraspinatus and teres minor deposits on top. An axillary view is necessary to delineate subscapularis

or teres minor deposits. A bicipital groove is often helpful as well. Most deposits can be relieved by needling. Rarely is it necessary to excise a deposit.

Subacromial Bursitis

True subacromial bursitis, unassociated with tendinous calcium deposits, is quite rare. Hydrops of the bursa has been seen on occasion and is readily diagnosed by soft fluctuant swelling. Sometimes, associated synovial osteochondromatosis or villonodular synovitis is seen.

Thoracic Outlet Syndrome

Brachial plexus stretch injury caused by distraction between neck and arm occasionally is the result of industrial accident. In such cases symptoms far outweigh objective findings and the patient may be considered a malingerer. Reflex changes are usually not present in the upper limb, and sensory defects do not follow any specific dermatomal or root pattern. Frequently, tenderness is present along the neurovascular bundle where it courses through the thoracic outlet, and this tenderness is accentuated by arm-neck distraction. Electromyograms often reveal abnormalities in affected musculature. Often "frozen shoulder" develops because of the reluctance of the patient to exercise. Sympathetic understanding accompanied by firm insistence on properly directed physical therapy will often restore the patient to gainful employment, although usually definite factors in permanent disability persist. The course of the neurovascular bundle from the neck to the arm is crossed by many potential obstacles. Above the clavicle, a cervical rib, a tight or thickened anterior scalene muscle (usually associated with degenerative disc disease at the fifth to sixth cervical interspace) or an abnormally fixed brachial plexus may result in cervicobrachial pain radiation due to pressure on the neurovascular bundle. At the clavicular level, a large bulky subclavius muscle, a narrowed space between clavicle and first rib, a Pancoast tumor or abundant callus from a clavicular fracture may cause similar complaints. Below the clavicle, the neurovascular bundle courses beneath the coracoid process and muscles arising there, and it may be encroached upon in this region.

Physical findings sometimes include a positive response to hyperabduction or to an Adson* test, and sometimes local tenderness not specifically related to nerve roots. Usually a course of well-directed exercises to increase the thoracic outlet will decrease symptoms. On occasion, it will be necessary to perform a comprehensive surgical exploration to relieve all possible points of neurovascular compression.

*Valsalva maneuver with simultaneous neck extension and rotation to the side that is painful, reproduction of pain being a positive response.

sion. The main cause of failure in surgical treatment of thoracic outlet syndrome is overlooking a site of possible stricture. Clavicular excision, as well as soft tissue dissection, may be necessary.

"Frozen Shoulder"

If a shoulder is immobile for a long time contracture of the joint capsule results. Pain, either referred or local, is the main reason for early limitation of motion. If the cause of the pain is diagnosed and early treatment begun, many cases of "frozen shoulder" can be eliminated.

The condition is usually self-limited over a period of two years. It has been termed "adhesive capsulitis" because of the fibrinous obliteration of capsular recesses, such as the postero-inferior joint pouch, the subscapularis bursa and the synovial sheath of the long head of biceps. Early intra-articular injection of hydrocortone and exercises regularly performed will shorten the process if the initial cause of the pain is eliminated. If contracture has existed for several months before treatment is begun, Dunlap's traction of the arm, with gradual abduction and external rotation, is useful when combined with intra-articular injection of steroids.

Manipulation under anesthesia is to be condemned. It has been demonstrated that the subscapularis tendon rips when the arm is forcefully externally rotated. Fractures of the humerus have been noted after forceful manipulation.

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Medicine in Society

Part II: Some Dimensions of Medicine in Modern Society

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ANY USEFUL CONSIDERATION of the role of medicine in society should include some assessment of many facets of modern medicine and the extent to which these penetrate into one or another aspect of our social and cultural system. Such an assessment can provide a sort of working definition of "modern medicine" for use in considering its social role.

A. An Expanded Two-Party Relationship

Medical practice is properly centered upon the two-party relationship between doctor and patient. It is the patient who is or may become sick and it is the doctor who has the knowledge and skill to diagnose, treat or prevent this illness. But in modern medical practice much has been added to this two-party relationship. The modern physician rarely functions alone for very long. He often needs the help and collaboration of other physicians. This growing interdependence among physicians has given rise to various forms of group practice which, however, tend often to weaken and at times almost to destroy the close two-party relationship which must always be the core of truly professional medical practice. Further, the physician now relies upon an increasing number of "paramedical" technologists who actually permit him to render better service to more patients more efficiently. This growing interdependence among physicians and various aides and technologists results in a larger and hope-

fully more efficient "health team" which has many sociological characteristics. It also tends to depersonalize patient care.

Specialized and at times very complex facilities, which are quite beyond the personal control of the individual practitioner, are now required in medical practice. Essential services are rendered to patients by clinical laboratories, hospitals, convalescent homes, nursing homes and research institutions, as well as by many voluntary and governmental health agencies. The hospitals are of particular importance because it is here that the more complicated forms of medical practice must be carried on, and thus the hospital inescapably exercises a profound influence on both medical practice and patient care.

Hospitals have an extremely complex and even awkward social structure. Authority is diffuse. It is divided among the board of trustees, who usually own the hospital and have the ultimate control; the administrator who must actually operate the hospital and is responsible to the trustees; and the medical staff who have direct responsibility for each patient. The nursing service also has authority and sets much of the "tone" which so greatly influences the care patients receive and their attitude toward their illness, the hospital, their physician and medicine as a whole. Within this complicated social structure the need of physician or nurse for professional freedom of action in caring for an individual patient runs head on into the need of a complex social system for administrative order and control. Nursing homes, clinical laboratories and

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other organizations which provide essential patient care also have complex social structures and sociologic characteristics of their own.

All these quite essential personnel, facilities and agencies function under many sorts of aegis. Taken together, they surely constitute a major and expanding sociologic dimension of medicine in society.

B. Specialization in Medical Practice and Medical Care

Just as expansion has occurred in the two-party relationship between doctor and patient so has expansion, specialization and fragmentation become evident within medicine and in the field of medical care. Both are an inevitable social consequence of the impact of scientific advances. Not only has specialization proliferated within the profession of medicine itself, but medicine has also given rise to a surprising number of related professions. These include dentistry, nursing, pharmacy, public health, hospital administration, social welfare, physical therapy, orthoptic technology, audiology, clinical psychology, laboratory technology to name but a few. The term "paramedical" is often used loosely by physicians to describe this group. Beyond this professional fragmentation there are also growing numbers of voluntary health and welfare agencies with active programs in professional and public education, service to patients and research; community and government hospitals; and other governmental activities such as public health, mental health, social welfare, industrial accident commissions and the like, which deal with one or another aspect of medical care.

The relationships between organized medicine and these many professional and non-professional groups truly represent another dimension of medicine in society.

C. Ramifications of Rising Costs

Another direct result of scientific progress in medicine has been the development of a growing number of new and often complex services which rapidly become accepted and necessary to good patient care. Many of these services are inherently expensive and their greater use is a principal cause of rising costs in medical care. These rising costs can only continue if the quality of medical care available to patients is to match advances in medical science as they continue to occur. However, each year the care rendered is more effective and therefore actually a better bargain. The widespread feeling that increasing costs are somehow an inflated cost of the same product is simply an error. Such inflation in dollar costs as exists generally reflects the devaluation of currency which has resulted from

the social, economic and political trends of the times.

As medical care has become more effective, society has become more determined that it shall be available to all as a right. The costs are such that if this is to be accomplished there must either be an effective voluntary system of prepayment which will for practical purposes include nearly everybody and cover nearly everything or some formal "compulsory health insurance" financed through taxes. In either case, a "third party," representing the legitimate and proper interests of those who share the costs of a given patient's care, becomes involved, who must see that the pooled funds of voluntary insurance or the tax funds of the government are properly spent. The two-party relationship between the doctor and his patient thus becomes a matter of public concern. The delivery of medical care, including its quality cost and efficiency thus comes under public scrutiny. The costs must be predictable in order that a sufficient premium or tax may be established. Industry, labor, government and the public become increasingly concerned with the economical use of physical facilities, with detection and control of abuses and with the removal of barriers to more economically efficient organization in medical practice and medical care.

It has been well said that "medicine is challenged to provide a voluntary prepaid medical service which actually pays for a more substantial part of the family medical bill, a service adequately disciplined and controlled against both the exploitation of that tiny minority who have larceny in their hearts and the creeping inflation which seems to have infected most of our economic institutions."

There can be no question but that medicine and the quality of medical care can be controlled by those who pay the bills. Since society in one way or another pays the medical care bills, this becomes a most important dimension of medicine in society.

D. The Dimension of Quality

In traditional two-party medical practice the quality of service rendered was simply a matter of the professional training and ethics of the physician. The patient and his family depended upon the reputation of the doctor for assurance of quality, but now more is involved. The public demands that advances in medical science be quickly translated into medical services available to all and those who pay the bills wish some evidence or measure of value received for the money spent. Quality in medical services and medical care is no longer simply a professional matter. It is the concern of many.

There is a proper and growing interest on the part of society in the adequacy of health facilities,

in the competence of those who render health services, and the detection of abuses. There are demands for reasonable control of costs, for evidence of efficiency in marketing, distribution and delivery, and for some means of determining the quality of the care received.

Assessment of quality in the total complex of medical practice and medical care is basic to any measure of value received for dollars spent. It is clear that this is a very important and in many ways a new dimension of medicine in society. The assessment of quality in medicine is far from simple. It is being attempted both within and without the profession. It would seem likely that whichever group becomes recognized as authoritative for whatever measures or standards of quality are developed, will ultimately be in a strong position to control medical practice and medical care. The mantle of leadership will reward the best performance.

E. Organization in a Complex Social System

It is clear that scientific progress in medicine, increasing specialization and interdependence within and between both medicine and society, and social and economic forces in medical care have combined to create a most complex social system. Social systems, like biological systems or physical systems, require some order and direction if they are to run smoothly. One may properly ask from where the order and direction is to come for the complicated and fractionated professional and social system of medical care. While this is obviously a concern of both medicine and society, society so far has expressed the greater interest in finding the means to make this complex system run smoothly.

Society, in a broad sense to include both community and governmental groups and agencies, organizes and operates hospitals, treatment centers for mental illness, rehabilitation programs, home care programs and the like. Special programs are being provided or developed for groups with special problems such as needy children, the aged, those with special diseases, special needs for rehabilitation or those who run the risks of special industrial hazards. Considerable attention is being given by society to long range needs for health personnel and health facilities which has resulted from an increasing population, increasing urbanization and increasing utilization of medical services.

All of this has resulted in a marked expansion in the supervisory role of the community and of government in medical care. The medical profession and organized medicine have seemed reluctant to exercise leadership in solving many of these problems in the organization of medical care, and the

initiative has more often fallen to others. Perhaps medicine should ask itself whether it is truly playing its proper role in this important dimension of medicine in society. It would seem inevitable that whoever gains control of the organization of medical care will ultimately exercise a determining influence on medical practice, the physician and the patient.

F. The Patient and Society

A dimension of medicine in society which is of special interest relates to various sociological aspects of a patient's illness. In our culture it is socially acceptable to stay away from work if one is sick or incapacitated. Flowers, gifts and other expressions of sympathy are extended. The individual is only supposed to try to get better. The responsibility for illness or injury, if any, appears to rest more with society than with the patient. This is evident in the philosophy which underlies much personal injury litigation, the administration of workman's compensation laws, and even in the utilization of medical care programs provided for war veterans.

The attitude of the family, cultural beliefs in relation to various disease entities, and the background of the patient's relationship with the family are important aspects of many illnesses. When a patient is admitted to a hospital he must adjust to a very special social environment in which he is bound to be insecure, to lose much of his self-identity and be subjected to the restrictive rules of a highly integrated staff which more or less "processes" the patient through his hospital stay. A patient's reaction to part or all of these sociologic influences may affect the progress of his treatment and the course of his illness. Often social factors, such as a pending insurance settlement may retard recovery or a disability pension may seriously impair progress in rehabilitation. It should also be noted that cultural factors and social attitudes frequently affect the outcome of programs in public health and health education. They also influence public expectations of medicine and medical care.

This dimension of medicine in society is of greatest importance, although it is as yet imprecisely defined and certainly poorly understood.

G. "Social Disorders" in and of Society

The question of how far medicine does or should extend into what might be termed "social disorders" of either the individual or of groups of individuals needs examination. For example, the health and welfare of the individual is influenced by cultural habits such as smoking. It is also affected by pollution of air, and of land and water resources. These are clearly social phenomena. To what extent are

delinquency, crime, sexual perversion, alcoholism or narcotics addiction a concern of medicine? To what extent are the social implications or mental illness and mental retardation or the needs of patients for social as well as physical or psychological rehabilitation of interest to medicine? It would seem that such "social disorders" do directly affect the health and welfare of the human being and that therefore they must be considered a dimension of medicine. Sociologic techniques and know-how may be needed to deal with these "sociologic" disorders.

Scientific progress in medicine has itself directly produced disorders in society. The average life expectancy has been extended, and a large number of individuals live to be in the older age groups. Medicine has been able to reduce infant mortality and the overall death rate in many backward parts of the world. This has resulted in a rapid increase of population in areas which are poorly developed and poorly able to support a large population. Scientific progress in medicine seems to create problems for both medicine and society at an almost exponential rate when compared to the amount of progress itself. Further, genetic control may soon become a scientific possibility, and medicine will be in a position to contribute substantially to the biological as well as the cultural evolution of the race. Medicine's concern with the health and welfare of the individual would therefore appear inescapably to lead to new dimensions of medical responsibility and medical practice in the realm of the "social disorder" of the human individual and of the "health" of society as a whole.

H. Some Dimensions in Medical Education

The physician is and must always be a teacher. He teaches his patients for their better health and welfare, and on a broader scale the profession teaches the public and society how better health and human welfare may be achieved. Many of these functions are actually carried out by organized medicine, by public health personnel and by paramedical personnel such as health educators, nurses, dietitians and the like. The better science writers draw their material from authoritative sources in the medical profession and in a sense may be considered part of the educational dimension of medicine in society, although they may maintain a critical independence.

Medicine's primary responsibility for the education of future physicians has so far been clear. The profession has delegated the burden of this responsibility to medical schools and medical centers, although it has retained a substantial degree of surveillance and control through accreditation and

certification procedures. Not so clear is medicine's responsibility for the continued training and professional competence of practicing physicians, for the training or standards of training and competence in many paramedical professions which have responsibility for patients and for recruitment of competent individuals for all the health professions.

In many teaching centers there is growing evidence to suggest that the rapid development of what might be called "scientific medicine" and the enormous amount of funds which are available for scientific research in medicine are producing a serious educational imbalance. Faculties tend to become absorbed in and fascinated by the unfolding mysteries of medical science. Their academic progress and reward is measured largely by their achievement in research. Clinical competence and teaching effectiveness are given some recognition in faculty advancement, but the balance between the science and the art which was achieved in the Oslerian tradition has been seriously disturbed. The art of medicine and the teaching function of the physician have become relatively neglected in both research and instructional programs. Modern medical education should look to a better balance between the academic and professional aspects of the physician's training. Perhaps the practicing profession should exercise more of its very real influence.

This "educational" dimension of medicine in society may be of crucial importance for the future of medicine. The education of present and future physicians is a responsibility which has been largely delegated by the practicing profession, but it has not yet been abrogated. Perhaps this responsibility should be re-examined by academicians and practitioners alike.

I. Medicine and Politics

The role of the physician in politics is closely related to his teaching role and is an expression of his responsibility to help improve human health and welfare whether in the individual, in groups of individuals or in society itself. The success of a physician in his practice or of the medical profession in society depends upon a willingness, ability and skill to convince the patient, be it the individual or society, of the accuracy of the diagnosis and the reasonableness of the proposed course of action.

Politics is the means by which things are done in any complex yet somewhat free social organization. Strength or effectiveness in politics is generally a function of the amount of support. Political support comes from individuals who are convinced a position is correct and in their best interest. The means by which the public becomes convinced of the accuracy of the diagnosis and the reasonableness of the proposed course of action closely parallels the means

by which a patient is persuaded to carry out the treatment which is best for him, in the successful doctor-patient relationship.

Curiously, this "political" dimension of medicine in society has hardly been explored. Physicians have yet to develop their professional skills in this field. Progress is slower than it might be because many physicians and many segments of organized medicine are reluctant to express themselves except in matters pertaining to pure medical science. But it is this very same medical science which makes it necessary for medicine now to become active in politics, both within the profession and in society, in order to exercise its ancient responsibility for the betterment of health in the modern setting.

J. Medicine and the Law

The relationships between medicine and the law are obviously becoming more complex. Traditional legal medicine was primarily concerned with determining the fact of birth, the cause of death and perhaps the qualifications of an individual to practice his profession. But now there is much more. The law is the means whereby society regulates itself in terms of its concept of man, its cultural beliefs, its technological development and the impact of these upon its way of life. The technologic progress pro-

duced by modern science in both medicine and society is rapidly changing our way of life. Medicine and the law are coming to share many new interests as the dimensions of medicine in society continue to expand. The number of bills introduced each year into the Legislature or the Congress attest to this.

However, medicine's changeless concern with the health and welfare of the human individual and of humanity in a changing world, makes this a most important dimension of medicine in society. In many areas should not the law really become an instrument of medicine rather than medicine an instrument of law?

K. Conclusion

The foregoing "dimensions" of modern medicine in modern society are sketchy and only allude to the true scope of each. Furthermore the list is surely not complete. But this section will have served its function if it points to the extent of medicine's present involvement with society and to the fact that this involvement can only increase in the foreseeable future. Perhaps taken together these "dimensions" may provide a crude definition of "modern medicine" in modern society.

Part III of this communication will appear in a later issue.

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Psychosomatic Diseases of the Colon in Adults

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THIS REVIEW will focus on the psychiatric aspects of diseases of the colon in adults generally considered to be psychosomatic and the psychodynamic hypotheses which attempt to correlate emotional factors with the physiological events. The two diseases to be considered are the irritable colon syndrome and ulcerative colitis. Although these diseases sometimes have a number of symptoms in common and may be presented to the physician in a somewhat similar manner, they represent widely different disease states, both physiologically and psychologically.

Although some of the early investigators considered ulcerative colitis merely the end result of chronic and persistent diarrhea of the type seen in the irritable colon syndrome, there is little or no objective evidence to support this view, and it is essential that the psychiatrist keep well in mind the pathologic features of the disease when postulating relationships to emotional factors. Psychodynamic interpretations of psychosomatic disease, which may determine treatment and management strategy should be correlated with physiological knowledge of the disease if any significant contributions are to be made to understanding etiologic factors.

Ulcerative Colitis

A review of the psychiatric literature on ulcerative colitis lends itself to division into three sections: First, the typical personality patterns and emotional conflicts: Second, the hypotheses which

attempt to correlate the psychological and physiological aspects: Third, the proposed psychological treatment methods.

Alexander,¹ the most widely quoted investigator, viewed ulcerative colitis primarily in terms of the psychologic phase of personality development known to psychoanalysts as the anal period. He emphasized a type of "anal regression" in ulcerative colitis which he feels is common to "all types of diarrhea." The patient with diarrhea, Alexander believed, has an emotional fixation at the period of growth and development when toilet training is the chief developmental task. He found that when such a person, later in life, is faced with a situation requiring accomplishment for which he feels unprepared, he regresses to an "anal" type of "giving" and develops diarrhea. Alexander drew a parallel between the patient's way of giving and that of the infant to whom the excremental act is, on the one hand, like giving up a cherished possession and on the other is an accomplishment. He believed that patients with emotional fixation of this type, who are unable to give or accomplish when this is required of them as adults, regress to an infantile form of accomplishing both in psychological and physiological ways.

Alexander's work helps by focusing attention on these anal features of the personalities of patients with ulcerative colitis. He called attention to their primitive over-valuation of bowel functions as well as to their longings as frustrated, dependent persons. He furthermore believed that the illness is an attempt by the patient to substitute an inappropri-

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ate physiological adaptation to stress for a more appropriate psychological adaptation. He found little difference between the personalities of patients with the irritable colon syndrome and those with ulcerative colitis.

Groen¹⁵ described many important features of the character structure of patients with ulcerative colitis. He identified the usual precipitating stress as a significant loss and called attention to the emotional state which precedes the tissue changes. He described his patients as intelligent but under-achieving, dependent, egocentric, oversensitive persons who appear as mild, neat and fussy, insecure sentimentalists. Often they are impotent or frigid and rarely marry or, if they do marry, have poor marital adjustments. When reporting the usual precipitating stress and the patient's morbid emotional state, Groen said:

"Thus, in our cases, owing to some external reason, a situation arose with which the patient could not cope and from which he could not escape. This situation resulted from an emotional trauma, which involved a combination of acute love-loss and painful humiliation. It persisted in the unconscious as long as the conflict was not solved . . . This state of bereavement and humiliation which the patient could not solve by words or by actions, and which he continued to conceal, preceded the outbreak of ulcerative colitis, usually by barely a few days."¹⁵

Lindeman^{24,25} reported 87 patients in whom ulcerative colitis developed in a setting of bereavement or loss. He reported that "the mental status seen during acute phases of this disease is often that of a morbid grief reaction in which adequate mourning is replaced by an impaired mental state." And he noted further that "a common life situation preceding the onset of ulcerative colitis is the loss of a key person on whom the patient has been dependent for interaction and emotional security."

Prugh reporting on this disease in children³⁴ also emphasized the patient's need for a pathologically close relationship with a key parent. He described the basic emotional conflict as one that "arises from the incompatibility between intense wishes to be loved and accepted by the parents, particularly the mother, and wholly unacceptable and unexpressed feelings of anger and resentment toward the parents as a result of their inconsistent and often confused handling." He pointed out also that the precipitating stress is usually one in which there is real or fantasied "loss of emotional security and the acute arousal of overwhelming, yet unacceptable and guilt-producing feelings of anger or resentment toward some figure in authority, usually the parents."

Sperling^{35,36} also described a pathological parent-

child relationship and stressed the contradictory attitude of the mother, who unconsciously attempts to maintain the child in a prolonged dependence upon her to satisfy certain of her own emotional needs, while simultaneously showing strong, unconscious, destructive impulses toward the child. In her experience, the onset of the illness coincides with some real or fantasied rupture of this symbiotic relationship. Sperling particularly emphasized the ambivalent nature of the mother-child relationship and the child's continued frustrations in its attempts to satisfy the mother's unrealistic needs. Also she pointed out that the mother's destructive impulses toward the child are intensified when the child's attempts to satisfy these needs provoke guilt or anxiety within her. Sperling expressed belief that the child, when faced with the rupture of this relationship, responds with an acute increase in his destructive impulses which remain repressed and are expressed in the symptom of bleeding.

Five papers by Engel⁶⁻¹⁰ develop one of the most definite viewpoints of the psychological aspects of ulcerative colitis. The central point in Engel's hypothesis involves the establishment of a symbiotic relationship with an important figure (usually mother) called by him the "key person" in the patient's psychologic reactions. Engel postulates, in his patients, that the mother-child relationship during early growth and development is a conditional one in which the mother is warm and succoring only when the child's behavior does not mobilize guilt or anxiety in her. He describes how the child's basic needs which can only be achieved through the mother, such as feeding, invoke anxiety and guilt in her. The "colitogenic" mothers respond to this provocation with overprotection and by attempting to make the child more dependent. Thus, the future patient is forced to relinquish a considerable amount of autonomy to the mother in order to obtain the requisite security and love.

Engel expressed belief that the onset of the illness is related to a real or fantasied disruption of this relationship which produces an affective state of helplessness and despair. According to his view, the patient can be seen as a person who, because of a peculiar childhood experience, is able to function adequately only when provided with an axillary ego supplied by an excessively over-protective and domineering mother (or substitute) who literally runs the patient as if he were an extension of herself.

Engel felt he found this pathological relationship in the majority of his patients and was able to relate the onset of the illness to the real or fantasied loss of this key person and to the consequent feeling of hopelessness and atypical depression.

Tichener¹¹ also observed this pathological mother-child relationship and related it to the psychodynamics of the entire family. He felt he could obviate the concept of a "colitogenic" mother and relate the defective nature of the patient's ego to the disturbed nature of the entire family relationship.

Recent studies by the present author and co-workers¹¹ support most of Engel's observations of the psychological processes. In our initial study there were 47 patients who all showed open and severe psychopathologic states. In 32 of these patients who had been given the Minnesota Multiphasic Personality Inventory (MMPI), 31 per cent had one or more scores of 70 or higher, which is in the pathological range. This impression of rather severe psychopathologic disorder is clearly emphasized by reports of the patient's sexual adjustments which reveal a striking level of immaturity.

Another aspect of our study is that 80 per cent of the patients report a history of previous psychosomatic illness other than ulcerative colitis. Nine of the patients had a history of a peptic ulcer or had a concomitant duodenal lesion. This coexistence of peptic ulcer and ulcerative colitis has been reported before and emphasizes the patients' pattern of reacting to stress with various somatic illnesses.^{3,17} This pattern of varying physiological responses to stress in the same patient raises important questions about the specificity of stress and alleged "specific chronic nuclear emotional conflicts."

In the longitudinal study of three cases of ulcerative colitis, Kollar and coworkers²³ discussed this question further and hypothesized that, although there are few external common denominators in the actual stress, the common factor is the manner in which the patients perceive the stress. That is, it seems that the stress situations which trigger an episode of ulcerative colitis are those in which the patients experience a real or fantasied object loss and where they are unprepared to accept or work through the loss.

In our studies, the patients' mothers were almost universally described as controlling, hostile over-protective women who usurped many important ego functions during the patients' growth and development, leaving them with grossly defective egos. This usurpation seems to be a direct consequence of the mother's psychopathologic state and habitual pattern of conditionally accepting her children. This picture of the mother-child symbiosis is strikingly supported by descriptions of the patient's father which indicate that he is weak, ineffectual, often absent and not a consistent or an effective force in the patient's childhood.

The precipitating stress is proposed to be an object loss or the loss of a major source of narcissistic gratification. The patients are predisposed and overly sensitive to loss of this type because of their pathological ego development and over-dependency on a controlling and domineering mother. They are ill prepared to cope with major object losses because of their remarkable lack of stable independent ego functions and they react to these losses with a state of helpless despair.

The vast majority of these patients are obviously depressed when interviewed and 60 per cent have grossly elevated D (depression) scales on the MMPI. This painfully depressed emotional state is further dramatized by the absence of protest activity or constructive efforts to manipulate or adjust to difficult life situations. Morbid grief is apparently specific for the onset and exacerbations of ulcerative colitis. When the patients respond to other stresses with different affective states, either other psychosomatic symptoms or neurotic or psychotic symptoms develop.

Hypotheses of how this character structure and morbid reaction to object loss result in the pathophysiological alterations of the disease and eventual tissue changes are numerous and incomplete. Although some investigators offer a symbolic explanation of the symptoms^{35,36} and others hedge the question by citing "stock bound" sensitivity,^{13,14} the majority see the ulcerations as secondary lesions resulting from persistent diarrhea.

Alexander,¹ Szasz,^{39,40} Groen,¹⁵ and others follow the suggestions of Luim^{26,27} and Sullivan^{37,38} and attribute the ulcerations of the colonic mucosa to the increased digestive powers of the liquid contents of the small bowel, to hypermotility and to ischemia from spasm. They speak of the disease in terms of chronic diarrhea secondarily resulting in ulcerations and neglect the common clinical observation that the onset of the disease is not usually marked by diarrhea but by the appearance of bloody stools.

As pointed out by Engel and confirmed by the present author and by others, more than 66 per cent of the cases actually begin with normally formed bloody stools or rectal bleeding associated with constipation. The diarrhea seen later in the course of the disease is the result of the ulcerations, inflammation of the bowel wall and altered muscular function due to scar tissue. This high incidence (67-68 per cent) of patients reporting bleeding as the first symptom of the disease is rather convincing evidence that the histopathologic state of the colon is not secondary to diarrhea, and it also tends to invalidate hypotheses correlating the psychopathologic condition with the tissue changes on the basis of automatic imbalances and hypermotility.

Engel⁷ offers instead a hypothesis relating the psychological phenomenon to a pathophysiological process involving altered mucosal vascularity. He follows Warren,⁴² who is impressed with vascular changes in the mucosa and submucosa of the large bowel. Engel hypothesizes a complex psychophysiological state of which depression is the emotional expression, and vascular changes in the colon, the somatic expression. He offers no explanation, however, of how the psychological phenomena result in the altered vascular state of the colonic mucosa.

Recent investigations have cast considerable doubt on the thesis that alterations in the vascular state of the colonic mucosa have etiological significance in ulcerative colitis. In fact, Lumb^{28,29,30,31} and others¹² believe that the vascular changes seen in ulcerative colitis are secondary to generalized inflammation and have no primary etiological significance. They believe that changes in the pattern of epithelial regeneration in the crypts of Lieberkuhn are of more significance and are probably the first histological changes apparent in this disease. They suggest that this flattened atypical epithelium predisposes the colon to trauma and infection and results in the ulcerations seen in the full-blown disease. Their work is generally supported by other investigators who describe alterations in the biochemical functioning of these cells.³²

The increasing evidence of the presence of an immunological disorder in ulcerative colitis also must be considered when constructing a psychosomatic hypothesis of this disease. Work by Klavins²² tends to implicate the colonic mucosa of ulcerative colitis patients as the site of an antigen which provokes antibody formation which is perhaps instrumental in the formation of the lesions in the colon. Although indications of altered formation and function of colonic epithelium in ulcerative colitis are still only suggestive, considerable doubt has been cast on those psychosomatic hypotheses which explain the disease on the basis of motility imbalances, spasm or ischemia.

Psychiatric treatment in addition to medical management is often useful and may help alter the course of the disease. In the most comprehensive study of the effect of psychotherapy on the course of ulcerative colitis, O'Connor and coworkers^{5,33} reported that "psychotherapy has a demonstrably favorable effect on the somatic course of the disease." In a series of 57 patients treated with both psychotherapy and medical management, they noted a definitely less severe course of the disease when compared with a matched control group of 57 patients treated only with medical management. The controls and treated subjects were observed for at least five years and they were matched as to severity of the

disease, age, sex and the use of steroids. Although the mortality rates and the numbers who had surgical repair were about the same in one group as in the other, the patients treated psychotherapeutically tended to have operations later than the control group. Definite symptomatic and protoscopic improvement was particularly prominent in a group of patients who experienced favorable environmental changes during the course of the study. The investigators were unable to find any correlation between the type of psychotherapy (analytic, supportive, brief, long) and the course of the disease. This observation, coupled with the fact that patients who experienced favorable environmental changes improved significantly, led these observers to conclude that both psychiatrists and internists should take a much more active role in manipulating the environment of these patients.

The present author believes that ulcerative colitis patients rarely have the personality assets or the ego strength necessary for psychotherapy in depth, with its emphasis on uncovering unconscious conflicts. The most effective approach with these patients is rather a type of supportive psychotherapy designed to help the patient repress some of his conflicts and encourage the use of his more healthy existing defenses. In the classical approach to psychotherapy with psychoneurotics, an attempt is made to prevent the patient from becoming dependent on the therapist. However, with ulcerative colitis patients it is necessary to encourage this dependency during the initial phases of treatment. Later, when the patient has recovered from the acute phase of his illness and gained strength, this dependency can be dealt with directly and attempts made with the patient to understand its origins in his relationship with the "key person." Although some patients are able to resolve these dependency needs through psychotherapy, the majority are only able to transfer the relationship to another "key person" and remain in a dependent position most of their lives.

Psychotherapy is critically important during the initial acute phase of the illness and is often dramatic in effect. During the acute phase of the illness, when the patient is profoundly and painfully depressed, it seems crucial that a warm, close and succoring relationship be established with a physician. If the patient is able to replace the lost "key figure" at this time with an equally powerful but more benign person, such as an understanding internist, the depression can be significantly alleviated and the disease state dramatically improved. In fact, in a series of patients dealt with by the author the only one who died during the initial episode of the illness was one with whom this close relationship could not be established.

The Irritable Colon Syndrome

The irritable colon syndrome is estimated to exist alone or in combination with other illness in 50 per cent to 80 per cent of the patients seen by gastroenterologists.^{18,19,20,21} It is also referred to as spastic colon, mucous colitis, spastic colitis, neurogenic colitis and functional colon. In contrast to ulcerative colitis, this syndrome does not result in any permanent tissue change (although one author attributes diverticulosis and hemorrhoids to it¹⁶) or in any significant threat to life. However, the syndrome is usually chronic, and the patient is uncomfortable, anxious and at times demanding. In comparison with ulcerative colitis there has been little recent psychological investigations of the syndrome.

In a recent study of 130 patients, Chaudhary and Truelove⁴ described two broad categories within the syndrome. The first category (106 of the 130 in the series) is the "spastic colon group." All of these patients complain of abdominal pain and variable bowel habits with normal stools, alternating with periods of brief constipation and diarrhea. The second category (24 of the 130 patients) is the "painless diarrhea" group, in which the only symptom is painless functional diarrhea.

In Chaudhary and Truelove's study, as in most other studies,^{16,18,21} the variability of the patient's symptoms is stressed. The colonic pain is particularly variable in location and character. The majority of the patients locate the pain over one or more parts of the colon, although some complain primarily of back pain. The character of the pain is variable although periodic colicky pain is the most frequent type. Within the "spastic colon group" the bowel habits are quite variable, but diarrhea was the most common complaint.

All the patients in the Chaudhary series were given a "special interview devoted to psychological aspects of their disorder" and 75 per cent of the patients complained of depression and anxiety. Although the authors reported that 77 per cent of the patients in the spastic colon group and 87.5 per cent of the patients in the painless diarrhea group had significant psychological problems, they did not specify the nature of the interview or the psychological problems. They contended that the women in their series had more problems than the men and that the "presence of identifiable psychological problems made the prognosis worse." The potential for psychological management is emphasized by Chaudhary and Truelove's observation that a major improvement in the patient's life situation seemed to improve the state of the illness in 76 per cent of the cases where it occurred.

The variability of the symptoms in this syndrome

and its changeable nature have made the irritable colon syndrome one of the great mimics of gastroenterology.¹⁸ Halle¹⁶ particularly has emphasized the deceptive qualities of the syndrome and correlated its pathophysiologic features with several clinical problems. Particularly interesting was his discussion of the "splenic flexure syndrome" which he saw as a subtype of the irritable colon syndrome and which results in a clinical picture closely resembling myocardial infarction with radiating precordial pain and associated autonomic changes. He also drew attention to the autonomic imbalance which is an important part of the syndrome and results in such features as decreased cardiac output, slow pulse, clammy skin and weakness.

Repeated studies of colonic motility patterns with balloons and prolonged proctoscopic observations revealed a striking association of spasms, engorgement and motor imbalances, with emotional conflicts.² These emotional disturbances affect the colonic motor system through the vagus, and the pelvic nerves and the hypothalamus. Such increased parasympathetic activity results in heightened motor irritability, increased contractility, hyperemia, excessive secretion of mucus and associated signs of autonomic imbalance.²¹ It seems well established that these changes are the result of vagal hyper-tonicity and that the irritable colon syndrome, in contrast to ulcerative colitis, is directly mediated by neurogenic factors.

Alexander's¹ hypothesis of the psychodynamics of the irritable colon syndrome has merit. He drew attention to a pattern of obsessive attention to detail and duty, which he felt represents a reaction against strong dependent feelings. The urge to accomplish, in compensation for dependent needs, he believed does not result in actual accomplishment, but instead the patients substitute attacks of diarrhea. As in his discussion of the dynamics of ulcerative colitis, Alexander expressed the belief that a form of anal physiological regression takes place and results in excessive parasympathetic stimulation of the large bowel.

Szasz^{39,40} postulated an exaggerated gastrocolic reflex as the cause of functional diarrhea. It was his belief that the "basic physiologic rhythm of the gastrointestinal tract" is "the nursing infant experiences hunger, feeds, then defecates and falls asleep." Szasz implicated oral-dependent strivings in constipation and felt that a sudden decrease in these feelings results in diarrhea. Although Szasz concentrated on oral strivings in a manner similar to Alexander, he differentiated between the vagal hyperactivity accompanying constipation with the sudden diminution of this activity which, in his opinion, initiates diarrhea.

Grace and coworkers^{13,14} viewed diarrhea as part of an ejection-riddance pattern involving the colon. They expressed belief that patients with functional diarrhea are thwarted and passive persons who feel overwhelmed by environmental demands. The patients then attempt to rid themselves of the overwhelming situation through unconscious processes affecting the colon.

In the most extensive study of the irritable colon syndrome from the psychological point of view, White and coworkers⁴³ reported on 57 cases. They divided the series into a "more neurotic" group of 29 and a "less neurotic" group of 28 cases. They noted that all the patients showed signs of anxiety and obsessive thinking. They observed what they considered to be "asthenia" in 71 per cent of the male and 78 per cent of the female patients. All these patients required more than the average amount of sleep, tired easily and had a generally low energy output. Most of the patients were indifferent to sexual relationships and many had minor compulsions. They had particular difficulty in making decisions, were painfully thorough, and tended to respond to insult or injury with smoldering resentment rather than open anger. Another characteristic of the group was a "tendency toward excessive neatness, compulsive completion of tasks, meticulous care in avoiding errors and overconscientiousness." However, the authors believed that there was an equally strong current of dependency and passivity and said they would diagnose the majority of patients as passive-dependent.

These investigators also expressed belief that this anxiety, "tension" and resentment then results in parasympathetic overactivity which is the physiological mediator of the bowel difficulty. In support of this hypothesis, they pointed to the observation of many other signs of parasympathetic overactivity such as dilated pupils, flushing of the skin, coldness of extremities, sweating and labile pulse rate.

In summary, there is an almost universal agreement in the literature that psychogenic factors play an important etiologic role in the irritable colon syndrome. A composite of these observed personality problems pictures the patients as mildly compulsive, overly conscientious, rigid, mildly impotent, tense, neat and meticulous underachievers who have many unmet passive-dependent needs which they attempt to repress and deny. They generally are described as vitally concerned with presenting a conventional and socially acceptable appearance but feel unable to achieve their own excessively high standards. Although this alleged personality pattern differs in some respects from the one drawn for peptic ulcer patients (particularly in its obsessive-compulsive features) it shares many features with

this pattern (particularly the dependency problems). It is interesting to note the reports of the concomitance of peptic ulcers and gallbladder disease with the irritable colon syndrome.^{19,20} Heffernon¹⁹ reported 200 patients with "proven duodenal ulcers in whom a clinical diagnosis of irritable colon was also made."

Although a number of investigators have drawn personality profiles for patients with irritable colons and described some of their conflicts, no one has offered an acceptable dynamic theory of the onset and exacerbations of the syndrome. Kirsner and Palmer²¹ contended that the irritable colon syndrome is not "a prominent manifestation of a serious psychogenic disorder," but rather "the bowel difficulty often seems to arise from the many usual problems, frustrations, and anxieties of life, rather than from important psychiatric abnormalities." They cited such "everyday problems" as "fear of disease, a change in living conditions, a new job, unexpected loss of money or work, death of a member of the family, domestic difficulties, social crisis, unstable moral and religious tendencies and fatigue." Most of these factors do not seem to be "everyday problems," and the common psychiatric observation that the inability to cope with the everyday problems of life is the sine qua non of emotional illness is neglected. No one believes that everyone who experiences these "everyday problems" will develop an irritable colon but most psychological investigations of this syndrome have ignored the question of stress specificity and the correlation of emotional conflicts with the onset of symptoms. As was noted, the investigators have concentrated on drawing personality profiles and postulating "nuclear emotional conflicts" and have left the question of the dynamic correlation of stress and symptoms an open one.

The treatment of the syndrome is primarily medical and involves the use of antispasmodics, sedatives and dietary restrictions. The majority of observers suggest warm, supportive attitudes by the attending gastroenterologist, reserving psychotherapy for the serious "neurotic types." Further clinical investigation of this syndrome by psychiatrists certainly seems in order but some general considerations in the treatment of these patients can be stated. Patients with the irritable colon syndrome are not as sick emotionally or physically as ulcerative colitis patients and therefore are better able to tolerate classical psychotherapy. The limitations observed with ulcerative colitis patients are not necessary and the most appropriate type of psychotherapy is devoted more to uncovering unconscious conflicts and extensive personality reorganization.

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Tumors of the Brain

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IT IS CUSTOMARY to present the topic of tumors of the brain according to anatomical or pathological classification. There is some merit, however, in introducing the subject in the manner in which the patient presents himself to his physician, that is, by his complaints:

1. Weakness of an extremity; progressive in nature, usually painless, and often spreading to the second limb of the same side.

2. Speech disturbances; a difficulty in formulation and expression of words or comprehension of words (dysphasia), or a defect in the articulation of words, a slurring of speech (dysarthria).

3. Defects in vision; bumping into objects in a blind field, blurring of vision or double vision, or holding the head at a tilt to correct double vision.

4. Disturbances of balance; unsteadiness, clumsiness of gait, staggering, and ataxia.

5. Disturbances of coordination and control of an extremity that is not weak; defects in the modulation of a smoothly integrated motor system.

6. Epileptic seizures, either focal or generalized; epilepsy of late onset, that is, after the third decade of life.

7. Deterioration in mentation and personality; progressive organic dementia with slowed reaction time, decreased attention span, disturbances of recent memory, retention and recall, of arithmetical reasoning, of abstraction and judgment and of planning for the future. Progressive deterioration in the level of consciousness. Deterioration in cognizance of social amenities, incontinence of urine, lethargy.

8. Lack of development or loss of secondary sexual characteristics, amenorrhea, loss of libido.

9. The onset or change of character of headache, later occurring with vomiting, blurred vision, and drowsiness.

10. The development of unilateral eye protrusion (exophthalmos) or a visible or palpable growth on the calvarium.

11. Progressive deafness (unilaterally, with or without tinnitus); unilateral facial weakness; the occurrence of two or more adjoining cranial nerve palsies.

The Diagnostic Formulation

For the purpose of diagnosis of a brain tumor, the emphasis should be placed upon the new appearance of symptoms and their progression. Remission and intermittency in the history may occur and may be confusing, but the expected pattern is that of a minimally relenting, progressively worsening complaint, and the appearance of complaints in combination in an additive way. The history may span only a few weeks in the acute problem, or it may stretch over many years, as in focal epilepsy. But the natural history of even the benign tumor of many years' standing is that the symptoms appear in an increasingly rapid fashion as the dangerous and terminal stages of the illness approach.

Many of the major complaints represent the local signature of the tumor—in contrast to the complaints of headache, vomiting, blurred vision and stupor, which are more often nonspecific and tend to occur when dislocations of the brain are combined with elevated intracranial pressure.

A complete history and general examination should precede an examination of brain function. From the clues in the history one may concentrate upon the obvious, but special attention should be given to the following items: (1) The mental status; (2) the visual apparatus (fundusoscopic examination and a screening form of visual field examination should be done); (3) the special senses of smell and hearing along with other cranial nerve performance; (4) speech, for content and comprehension; (5) the motor system as manifest in status of development, tone, power, coordination, and reflex performance; (6) gait and stance; (7) the sensory system; (8) the endocrine systems.

It is almost axiomatic that the location of the tumor mass determines the focal signs that are produced, and if the historical facts and objective

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evidence correspond anatomically, the surgeon is well on his way to a diagnosis of its location. Signs due to generalized effects and to herniations of brain substance may provide false localizing clues.

The Diagnostic Tests

A complete roentgenographic skull series and chest study should be part of the initial examination. Specialized examinations are selected with discrimination:

- 1. Electroencephalography is mandatory in patients with focal epileptic discharge and is often useful for its focal slow wave pattern in other cases. It is available in all major medical centers.
- 2. Radioactive scanning after injection of a compound whose radioactive constituent localizes in higher concentration in tumor than in normal tissue. This is available only in special centers. The use of compounds containing the isotope of Mercury (Mercury 203) is promising.³
- 3. Audiometric and caloric examination of eighth nerve function is accomplished by use of speech audiometry and the Békèsy tests of tone distinction plus refined calorimetry and rotational tests combined with nystagmometry.
- 4. Clinical perimetry for quantitative charting of the fields of vision requires tangent screen and peripheral perimetry analysis.
- 5. Laminographic studies of the skull, especially

the petrous bones give excellent delineation of complicated basal structures.

Depending upon the evidence obtained from the sources of information mentioned, the clinician utilizes specialized neuroradiologic diagnostic aids in localization of the site and occasionally in defining the nature of the tumor. These aids, consisting of special tests, are justifiable risks when dealing with a probable or even possible brain tumor. They are:

- 1. Angiographic visualization of the carotid and/or basilar arterial and venous systems (angiography).
- 2. Negative or positive contrast ventriculographic delineation (ventriculography).
- 3. Gaseous visualization of all intracranial cerebrospinal fluid pathways (pneumoencephalography).

Age and Site of Occurrence of Tumor Types

Knowledge of the tumor, the duration of its history and the age of the patient help in predicting the nature of the neoplasm. Table 1 demonstrates the correlation of this information into a probability aid for diagnosis.

Certain tumors tend to occur after the first one or two decades of life and are rarely found before this, notably meningiomas, neurilemmomas, hemangioblastomas and pituitary adenomas. On the con-

TABLE 1.—Correlation of Type of Tumor with Various Sites and Age Range

Location	Tumors Likely to Be Encountered	Peak Age Range
Cerebral Hemisphere tumors	Glioblastoma Multiforme	25-65
	Astrocytoma	25-45
	Oligodendroglioma	15-55
	Ependymoma	20-50
	Metastatic Tumors	35-65
Bilateral, interhemispheric or midline supratentorial tumors	Gliomas (Corpus callosum)	first 3 decades any decade early adult life
	Teratoma (Pineal region)	
	Pinealoma	
	Epithelial cysts	
Midline tumors of the cerebellum and brain stem	Ependymoma	2-50
	Medulloblastoma	2-30*
	Hemangioendothelioma (angioblastoma)	20-60
	Astrocytomasponggioblastoma of brain stem	2/3 in children
	Astrocytoma of vermis (1/3-2/3 cystic)	2-45
Cerebellar hemisphere	Astrocytoma (1/3-2/3 cystic)	2-45
Cerebellopontile angle	Neurilemmoma	20-65
	Meningioma	20-65
	Glioma (ependymoma)	2-50
	Epidermoid dermoid tumors	20-60
Chiasmal-suprachiasmal area	Pituitary Adenoma	20-60
	Craniopharyngioma	5-60
	Chiasmal and optic nerve gliomas	Early decades
	Meningioma (tuberculum sellae)	
	Epidermoid-dermoid tumors	
Meninges—all loci	Meningioma	20-65

*3/4 under 15 years.

trary the peak incidence of medulloblastomas, cerebellar sarcomas, cerebellar astrocytomas, brain stem gliomas (astrocytoma-spongioblastoma), and ependymomas occurs before puberty. Some tumors, such as the craniopharyngioma, may appear in any age group although the incidence is highest in the first three decades of life.

Tumor Behavior

The terms *malignant* and *benign* used in reference to brain neoplasia require modification from the strict pathologic definition. A primary tumor that remains sharply circumscribed and surgically separable from the surrounding brain and that does not metastasize or disseminate may be judged benign, yet if its location and attachments make excision impossible it may bring about the death of the patient. An example is a large meningioma in the olfactory groove with a sessile, basal attachment in the floor of the anterior fossa. Furthermore, an untreated histologically benign tumor may cause death if it is located so that it obstructs passage of cerebrospinal fluid or compresses the hypothalamus. An epithelial paraphysal cyst of the third ventricle obstructs the cerebrospinal fluid, and a Rathke pouch cyst (craniopharyngioma) compresses the hypothalamus. These tumors are histologically benign but if not excised do kill. Certain "malignant" primary tumors of the brain may remain quite localized within a cerebral hemisphere, and yet may histologically and in behavior represent the most pleomorphic and rapidly destructive of the glial neoplasms. The glioblastoma multiforme is such a tumor.

Thus the location of the tumor, its relationship to brain tissue and its rate of growth must be weighed, as well as its histologic appearance, in assessing the relative benignancy or malignancy. The confined environment of the cranium makes an otherwise benign tumor "malignant" from the patient's and the surgeon's point of view. A histologically benign astrocytoma of slow growth and low-grade biological performance may, because of its location, seem to be removed in a complete manner, yet eventually because of its diffuse and histologically inseparable involvement with functional neural tissue it may cause the patient's death.

Formation of cysts and the deposition of calcium seen radiologically often suggest a benign growth. However, cysts that form because of necrosis occur commonly in the glioblastoma multiforme, a rapidly progressing "malignant" tumor. The cyst from mucoid degeneration and liquefaction in the "benign" cerebellar astrocytoma is not surrounded by tumor tissue but is located as a mass in the wall of compressed nonneoplastic tissue. Occurrence of a cyst in this case is a favorable finding, as is the

isolated cyst of the hemangioblastoma. Calcification within a tumor is favorable only in that it tends to exclude the diagnosis of glioblastoma multiforme, for infiltrating gliomas such as oligodendrogliomas, astrocytomas and ependymomas calcify but nevertheless defy cure, whereas eighth nerve neurilemmomas, many meningiomas, most pituitary adenomas and some dermoid-epidermoid tumors may *not* calcify but as extracerebral tumors can be totally excised and are called benign.

Treatment

The treatment of intracranial tumors has benefited by some changes of recent years: (1) Improved methods for the control of intracranial pressure—the use of osmotically active agents (such as urea and mannitol), hypothermia and positive-negative pressure anesthesia; (2) improved techniques for administering ionizing radiation; and (3) the development of chemicals that insult neoplastic tissue more than normal adult tissue. In certain areas, notably the pituitary, the availability of endocrinologic replacement therapy permits "near total" excision of neoplasms heretofore only decompressed.

A general statement on the therapy of brain tumors is of little meaning when the physician is confronted with a specific problem, for each tumor type and location constitutes a separate challenge. In this discussion we are dealing in reality with many disease entities and will therefore attempt to group types of tumor and locales in a convenient way to discuss therapy.

The Glioblastoma Multiforme

This tumor constitutes one third of the glioma group which accounts for approximately one half of primary brain tumors.

When it is located in the central portion of the cerebral hemisphere involving more than one lobe:

Operation (reoperation not indicated)

To confirm tissue diagnosis

To evacuate cystic collections

To provide internal decompression in minority of cases.

Irradiation

Some evidence of added palliation.²⁰

Chemical Therapy

No established place as yet, but trials seem justified as chemicals become available. Cerebral perfusion, a formidable procedure, may be considered only after an improvement in chemicals is realized. Local infusion, however, is worthy of application today even though the drugs available are only "on trial."^{21,22}

When it is located primarily in either frontotemporal or occipital poles:

Operation (reoperation rarely indicated)

To confirm tissue diagnosis

To evacuate cystic collections

To excise as much of tumor bearing lobe as is possible compatible with useful convalescence.

Irradiation

Some evidence of added palliation.²⁰

Chemical Therapy

No established place as yet but trials seem justified as chemicals become available, just as with tumors of central location.

Survival with this family of tumors is short. German reported all of 183 patients with glioblastoma multiforme dead four years postoperatively and more than 90 per cent dead in 18 months.⁷ Bouchard reported the average survival at 15.8 months with 10.7 per cent surviving four years.¹ Roth and Elvidge reported 3 per cent to have survived five years.²⁰ Grant reported no survivals beyond five years in 188 patients.⁸

The Astrocytoma

This tumor constitutes over one half of the gliomas.

When it is located in the cerebral hemisphere in the central portion thereof involving lobes in combination:

Operation (reoperation to provide internal decompression may be indicated)

To confirm tissue diagnosis

To evacuate central portion of solid tumor including cystic portions. No excision indicated for the diffuse, noncystic lesion.

Irradiation

Indicated in almost all such tumors except the most low-grade, "benign" forms.

Chemical Therapy

Not useful at present.

When it is located primarily in a frontal, temporal, or occipital pole:

Operation (reoperation may be indicated)

To confirm tissue diagnosis

To excise in block fashion as much tumor as possible in hopes of complete excision.

Irradiation

Indicated in almost all as in that occurring in more than one lobe.

Chemical Therapy

Not useful at present.

Although the astrocytoma is classified by some as radioresistant,³⁰ both German and Bouchard recommended radio-therapy and together with Uihlein reported improved survival rates when irradiation is employed as well as surgical excision.^{1,31} German considers cures possible in 10 per cent of tumors in this location and a 20 per cent survival to five years. These cerebral astrocytomas may show spurts of growth suggestive of a change in biological behavior and may assume the character of the glioblastoma multiforme following a life of many years as judged by history and evidence of long-standing calcification.

When it is located in the cerebellum:

Such tumors are cystic in one third to two thirds of the cases and if so the neoplastic mass frequently occupies only a portion of the cyst wall. These tumors and their cysts of compressed cerebellar tissue are more or less equally distributed between the vermis and the cerebellar hemispheres; often both structures are involved.

Operation (reoperation may be indicated)

To establish tissue diagnosis

To evacuate any cystic formation

To excise all tumor compatible with safety

To correct obstructive hydrocephalus either by tumor excision or by a cerebrospinal fluid short-circuit.

Irradiation

Indicated if tumor excision has not been "complete" in the macroscopic sense.

Chemical Therapy

Not indicated.

There are long term survivals (occasionally up to 20 years) following only solitary cyst evacuation of certain cystic cerebellar astrocytomas which indicates their benign nature. With proper surgical excision cure may be hoped for in perhaps half these cases. German reported that 76 per cent of the patients of the Cushing series survived five years postoperatively.⁷

The Medulloblastoma

Although this tumor usually appears within the fourth ventricle and causes a vermis syndrome predominantly in male children, it does occur rarely in other parts of the posterior fossa in subsequent decades of life, and the patient has a longer survival. The following comments concern the common, rapidly growing childhood tumor, which tends to disseminate throughout the cerebrospinal fluid pathways.

Operation (reoperation rarely indicated)

To establish a tissue diagnosis

To unblock the fourth ventricle or provide a cerebrospinal fluid short-circuit for the obstructed flow

Perhaps (in selected cases) to achieve subtotal excision.

Irradiation

Indicated to the entire neuraxis.

Chemical Therapy

Semi-experimental, via vertebral artery or into the sub-arachnoid pathways.

Because of the intimate attachments of these vascular tumors to the medulla, a high rate of operative mortality has been associated with attempts at radical excision. Recent experience suggests this may be improved, but current therapy brings only 6 per cent of patients to a three-year survival.⁷

Grant reported a five-year survival of 3.5 per cent of patients surviving operation.⁸

Although the average postoperative survival is brief (15 months), irradiation definitely gives improved and lengthened survival.⁵ Of 38 patients who were operated upon and irradiated five or more years previously, Smith and associates reported 11 alive and five of them well.

The Ependymoma

This tumor, usually of the fourth ventricle but occasionally of the cerebral hemispheres and rarely of the cerebellopontile angle, varies from one of well organized epithelial or papillary architecture to a more anaplastic lesion. It is not uncommonly cystic in the cerebrum and about 15 to 20 per cent may calcify in this location. The posterior fossa tumor is usually solid.

When it is located in the cerebral hemispheres involving the lateral ventricles:

Operation (reoperation may be indicated)

To establish tissue diagnosis

To unblock the ventricular system and excise as radically as compatible with preservation of useful life.

Irradiation

Indicated for these tumors.

Chemical Therapy

Semi-experimental, but justifiable trials are indicated for nonresectable tumors.

When located in the midline—fourth ventricle position:

Operation (reoperation may be indicated)

To establish tissue diagnosis

To excise all tumors when compatible with safety to the brain stem

To unblock the obstructed cerebrospinal fluid pathways by tumor excision or short-circuit operation.

Irradiation

Indicated for the incompletely excised tumor.

Chemical Therapy

Semi-experimental only.

These tumors, although considered radiosensitive by some investigators, are found in a broad spectrum from a fairly slowly growing papillary tumor to a rapidly growing mass demonstrating pleomorphism and glioblastomatous change. Less than one third of patients surviving operation are alive five years later. Mabon and associates reported that the percentage of patients surviving three years varied from 9 to 79 per cent depending upon the histologic grading of the tumors.

The Oligodendroglioma

This slowly growing solid tumor is located in the cerebral hemispheres or occasionally the optic nerves and calcifies in a high proportion of cases (40 to 60 per cent).

Operation (reoperation may be indicated)

To establish a tissue diagnosis

To remove as much tumor as is possible compatible with survival and preservation of function.

Irradiation

Little evidence of effectiveness.

Chemical Therapy

Not indicated.

This tumor may undergo a change in biological behavior and demonstrate a more rapid growth potential than its long history would cause one to expect, and such change may follow local treatment. German reported that 32 per cent of patients with multiple operations survived five years.⁷

Gliomas of the Brain Stem (Pontine Gliomas)

This tumor, either astrocytoma, spongioblastoma polare or glioblastoma multiforme, involves the major projection pathways and cranial nerve cell masses and fibers. It swells the brain stem and may cause obstruction of cerebrospinal fluid with clinical signs of increased intracranial pressure in about one-third of cases or less.

Operation

To exclude a resectable tumor of the fourth ventricle

To short-circuit any cerebrospinal fluid obstruction

To aspire a cyst or take a biopsy specimen (rarely).

Irradiation

Indicated in almost all cases. If initial improvement occurs, second courses of treatment may be offered.

Chemical Therapy

Semi-experimental, via the vertebral arteries, but its efficacy unknown.

Although three-fifths of such tumors respond temporarily to irradiation in a favorable fashion, the average survival is nine months with an occasional survival two to three years after diagnosis.

The Gliomas of the Thalamus, Posterior Third Ventricle and Corpus Callosum

This deeply placed, midline, usually bilateral tumor comes to attention in a patient with paralytic features, manifestations of pressure, and mental aberrations. It follows a rapid clinical course.

Operation

To verify tissue diagnosis via stereotactically placed cannulae

To short-circuit cerebrospinal fluid obstruction.

Irradiation

Indicated in most cases.

Chemical Therapy

Unknown as to proper method of application or efficacy but infusion therapy may be justified.

Because of the unfavorable tissue type and location of this tumor, survival is short and "cures" are not attainable.

The Gliomas of the Optic Chiasm and/or Optic Nerve

The oligodendroglioma, astrocytoma and spongioblastoma polare constitute most of the tumors in this location. Many of the chiasm tumors have spread from the third ventricle, but isolated chiasmal and optic nerve tumors appear in the younger age groups, occasionally as one of the protean manifestations of a neuroectodermal dysplasia (von Recklinghausen's disease, tuberose sclerosis, etc.).

For the tumor involving one optic nerve, often with unilateral proptosis and an enlarged optic foramen:

Operation

To establish a tissue diagnosis

To excise the tumor and nerve between the chiasm and the optic globe if the chiasm is not grossly involved.

Irradiation

Indicated if excision is not possible or incomplete.

Chemical Therapy

Not indicated.

For the tumor involving the chiasm:

Operation

To verify the nature and extent of the involvement.

Irradiation

Indicated in almost every case.

Although earlier reports were unconvincing, the use of higher dose courses of irradiation have given rise to some favorable responses.³⁰ This tumor may be quite slow in growth and the patient may survive for many years even with incomplete excision or without excision.

The Meningiomas

The underlying principle governing the management of these tumors is the mobilization of the best surgical technique for complete excision (occasionally in stages). Such excision often requires wide removal of the dural attachment with dural grafting²⁶ and bone excision with subsequent cranioplasty, often accomplished at one stage.

Meningiomas in special areas occasionally cannot be completely excised:

1. In the case of tumors that involve the superior longitudinal sinus with incomplete obstruction thereof, resection of all tumor-bearing portions of the dura mater is impossible. If total occlusion of the sinus comes about, excision may be feasible.

2. Extensive hyperostosis and bone infiltration about the sphenoid wings and orbit may create a cranial tumor of such extent that radical excision would be either impossible or too mutilating to be reasonable.

3. Certain tumors at the base of the skull involving the clivus, or large tumors of the tuberculum

sellae or vicinity may incorporate structures such as the carotid arteries in a manner to prevent total excision.

Many of these barriers to complete excision may be avoided by early perception and delineation of the tumor and the planning of a full-scale attack at the time of the first definitive operation.

In dealing with the meningiomata, which make up 15 to 20 per cent of primary intracranial neoplasms, the rewards for surgical excellence are high, for although under most favorable conditions a recurrence rate of about 9 per cent is reported, reoperation may be undertaken with opportunity for cure.²³

The Pituitary Adenomas

1. The non hormone-secreting or minimally secreting chromophobes or mixed adenomas constitute two-thirds of the primary tumors of the hypophysis. They expand the sella turcica and compress normal glandular tissue and extend extrasellarly to involve neighboring structures, notably the visual apparatus. Occasionally the cavernous sinus, temporal lobe, third ventricle, frontal lobes or the interpeduncular fossa may be encroached upon.

For the strictly intrasellar tumor without neural deficit manifested by endocrinologic deficiency or radiologic sellar change:

Operation

Not indicated.

Irradiation

Indicated in full tumor doses with careful neurologic follow-up.

Chemical Therapy

Not indicated.

For the tumor which extends beyond the confines of the sella turcica with neural involvement (particularly visual field involvement).

Operation (reoperation may be indicated)

Subtotal to "total" excision indicated with complete emptying of sella turcica and excision of all tumor capsule compatible with safety for adjacent neural and vascular structures.^{17,28}

Irradiation

Indicated if tumor excision is recognized grossly as incomplete.

Chemical Therapy

Except for needed hormonal replacement, no destructive tumor therapy indicated.

2. The hormone-secreting acidophilic tumor manifesting as gigantism or acromegaly with evidence of continued hormonal hypersecretion.

Operation

May prove the best method of eradicating the destructive influence of the acidophilic tissue. (Too few cases as yet to establish the place of operation.)

Irradiation

Conventional therapy is inadequate in managing these tumors but proton beam irradiation has been successful, and local implantation of high energy radioactive isotopes via stereotaxic techniques hold promise.¹⁵

Chemical Therapy

Destructive therapy not indicated.

Although a recurrence rate of 8 to 10 per cent is recognized after surgical excision, current techniques are offering increasingly more complete excision with very low mortality.¹⁷

The Craniopharyngioma

This tumor is of highest incidence in the first three decades of life but occurs at any age, is sellar and suprasellar in location and is calcified in over half of cases. It manifests as a mass that causes hypophyseal-hypothalamic deficiency (hypogonadism, impaired growth and diabetes insipidus); if third ventricle obstruction or chiasmal compression is a factor, great care is necessary in planning therapy. Operation and hormonal replacement, if needed, are the only hopes for "cure."

Operation

To confirm tissue diagnosis

To evacuate the frequency encountered cyst or cysts

To excise by tedious teasing of all capsule from its intimate but not intrinsic involvement with adjacent neural and vascular tissue

To relieve obstructed cerebrospinal fluid flow by tumor excision or short-circuiting operation.

Irradiation

Not indicated.

Chemical Therapy

Not indicated.

These tumors have carried a high operative mortality in the past, and firmly attached tumor involving the third ventricle, basilar or carotid arteries must be left behind; but with current techniques total excision is compatible with useful survival.¹²

Pinealomas-Pineal Teratomas

These tumors of the first decades of life (teratomas) obstruct the cerebrospinal fluid pathways, compress the midbrain, and produce secondary endocrinologic imbalance through third ventricle distension.

Operation

To establish tissue diagnosis through stereotaxically placed cannulae

To provide a short-circuit to cerebrospinal fluid obstruction

To attempt total excision of small, circumscribed lesions in rare instances.

Irradiation

Indicated in almost all such tumors.

Chemical Therapy

Not indicated in its present forms.

Survival rates following treatment by a combination of cerebrospinal fluid decompression and irradiation support this indirect and more conservative management. Horrax reported six out of nine patients alive and well two to 17 years later.⁹ Rand and Lemmen reported an average survival of more than five years among 12 patients.¹⁶

The Neurilemmoma (Neurinoma) of the Eighth Nerve

This tumor is the most common of the cerebello-pontile angle and of the posterior fossa of the adult over the age of 30. It arises in a cranial nerve and grows slowly. It paralyzes nerve function and then progresses to involve neighborhood cranial nerves, disturbs cerebellar hemisphere function and eventually distorts the brainstem and obstructs cerebrospinal fluid flow. Treatment is strictly surgical.

Operation

To excise the tumor completely is the goal

To treat through facial-hypoglossal anastomosis any accompanying seventh nerve paralysis following tumor excision.

Irradiation

Not indicated.

Chemical Therapy

Not indicated.

Cure may be expected for these tumors when the meticulous technique of total excision can be offered. Subtotal, intracapsular excision has a place in the very elderly patient or in circumstances which, because of the intimacy of tumor involvement with the vascular supply of the brain stem, prevent excision without undue risk. German reported that approximately 50 per cent of treated patients survived ten years.⁶

The Hemangioendotheliomas and Hemangioblastomas

These tumors of the cerebellum, both midline and hemispheric, are cystic lesions in 80 per cent of cases and may occur as part of one of the familial and hereditarily important neuroectodermal dysplasias. Their association with erythrocytosis makes them especially interesting.

Operation (reoperation may be indicated)

To establish tissue diagnosis

To excise as much tumor mass as is possible compatible with preservation of useful survival

To evacuate tumor cysts if total excision is impossible
To short-circuit around a cerebrospinal fluid obstruction if tumor excision or cysts evacuation does not adequately relieve a block.

Irradiation

Not indicated.

Chemical Therapy

Not indicated.

Because these lesions are frequent posterior fossa tumors of adult life, it is helpful to know that total excision is possible in a high proportion of cases. Olivecrona reported 63 total excisions in 70 patients treated, with ten operative fatalities.¹³ Silver and Hennigar reported that 50 per cent of surgically treated patients survived five years.²²

Dermoid-Epidermoid Tumors

The locations of these tumors are temporal, parasagittal, orbital, parasellar and posterior fossal (midline, cerebellopontile angle and lateral medullary cistern). They are extremely slow-growing lesions but even a small tumor may cause trouble because of a strategic position. They may spread as a carpet of tumor and involve multiple cranial nerves along the base.

Operation

To excise totally is the goal.

Irradiation

Not indicated.

Chemical Therapy

Not indicated.

If total removal of the widespread, thin, desquamating epithelial wall of such tumors is not possible, evacuation of the soft, avascular content is usually followed by prolonged survival.¹⁹

Paraphyseal-Epithelial Cysts of the Third Ventricle

These are benign cysts that obstruct the inter-ventricular foramen of Monro and produce a hydrocephalus and variable symptom complex. The diagnosis is determined by ventriculography and the therapy is immediate operation and total excision. There is no place for irradiation or chemical therapy.

Miscellaneous Primary Tumors

The neoplasms that are almost a curiosity include the *ganglioneuromas* of the cerebrum, the *sarcomas* of the cerebellum, the *lipomas* of the corpus callosum and tumors of contiguous structures such as *chordomas* of the basisphenoid, tumors of the *glomus jugulare*, *osteochondromas* and *neoplasms* of the integument including the skull.²⁷ Tumors invading the intracranial chamber from adjacent areas such as the accessory nasal sinuses are not considered in this discussion.

The *arteriovenous anomaly* is, strictly speaking, not a neoplasm and although important as a cause of hemorrhage, hemiparesis, and epilepsy, will not be considered further. The lesions of inflammatory nature, specific infections, and the dysplasias of bone are also beyond the scope of our consideration here.

Metastatic Tumors

Ten per cent or more of brain tumors cared for in neurosurgical centers are of metastatic nature. They may be discovered by accident as the first indication of cancer elsewhere or they may develop in the course of a recognized primary lesion. They may appear after the primary tumor has been thought to have been eradicated, and under such conditions they rarely are solitary metastatic lesions.

If the tumor is diagnosed without primary tumor having been suspected:

Operation

To establish a tissue diagnosis

To remove the tumor.

Irradiation

May be indicated if the lesion is not resectable.

Chemical Therapy

Indicated if the tumor is not resectable.

If the tumor is a suspected solitary metastatic tumor under circumstances in which the primary tumor has been or can be eradicated:

Operation

To confirm a tissue diagnosis

To excise the tumor.

Irradiation

As in the case of an unsuspected primary tumor.

Chemical Therapy

As in the case of an unsuspected primary tumor.

If the metastatic disease is recognized as disseminated and the brain tumor appears single:

Operation

May be offered for relief of headache and neural impairment, depending on the patient's general life expectancy.

Irradiation

May be offered in palliation unless intracranial pressure is excessive.

Chemical Therapy

Holds promise—carried out via the major arterial supply to the tumor-bearing area.

If the metastatic disease to the brain is multiple as defined by the variety of diagnostic techniques available:

Operation

Not indicated.

Irradiation

May be indicated in selected cases.

Chemical Therapy

May offer the best designed palliation available.

Patients with metastatic carcinoma often have received courses of therapy, either irradiation or chemical administration, that interdict the use of still further therapy when metastasis to the brain appears, but merciful help may on occasion be offered.

The Future

The future lines of investigation that appear most profitable in the pursuit of improved methods of therapy, especially for the gliomas, seem to lie along the avenues (1) of the study of the effects of chemical agents upon experimentally generated animal tumors, (2) the study of methods of homologous and heterologous brain tumor transplantation from animal to animal and man to animal, whereby the genetic identity of the original tumor is not altered by its transplantation and subsequent passage, (3) the study of the growth requirements and responses to altered chemical environment of tumor explanted and grown in tissue culture.^{25,29,33}

Conclusion

The currently available methods of attack are effective in the management of the benign, circumscribed or encapsulated tumor. Improved safeguards to life during operation are always sought, but major revisions in surgical technique are unlikely in the near future. Because of incidence and inadequacy of surgical efforts to attain acceptable cure rates, the tumors in the group of malignant gliomas remain the outstanding challenge to the investigators in this important field.

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CASE REPORTS



Zollinger-Ellison Syndrome With Pancreatic Islet Cell Hyperplasia

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IN 1955 Zollinger and Ellison¹⁵ described two cases in which primary jejunal ulcers were associated with pronounced gastric hypersecretion, hyperacidity and non-insulin producing islet cell tumors of the pancreas and they postulated a definable clinical entity made up of this complex of conditions. Soon afterward Eiseman,² discussing a later communication, suggested that this clinical entity be called the Zollinger-Ellison Syndrome.

It was early proposed by Zollinger and McPherson¹⁶ that hyperplasia of the islets in the pancreas might be implicated in the severe ulcer diathesis requiring total gastrectomy, and a case in point was presented. The condition was likened to that in the parathyroid gland in which hyperplasia of the cells results in clinical and laboratory features identical to those produced by a true adenoma. Summerskill⁷ studied a similar case. The ulcerogenic potential of hypertrophy and hyperplasia of the islets was considered by Zollinger and Craig.¹² They noted hyperplasia of the islets was of little diagnostic significance because it occurs in association with many different conditions.

In the case herein presented, many of the features of the Zollinger-Ellison syndrome were present, but no islet cell tumor could be found. The pancreas showed islet cell hyperplasia.

Report of a Case

A 34-year-old Negro truck driver was admitted to hospital February 15, 1963, with chief complaint of intermittent upper abdominal pain of eight months' duration. He had been in good health before that time. The pain was burning in nature and radiated to the midback from the epigastric area. Ingestion of food, milk and antacids partially relieved it. It was often associated with nausea and vomiting but not with hematemesis or melena.

Five months before admission, he had been put in hospital elsewhere and after x-ray examination a diagnosis of multiple duodenal ulcers was made. At that time, serum calcium was 9.5 mg per 100 ml and serum phosphorus 3.7 mg per 100 ml. Results of serologic tests for syphilis were negative. A 12-hour gastric specimen measured 1180 ml with a total acidity of seven clinical units and free hydrochloric acid zero clinical units. There was a possibility that the patient had taken antacids, accounting for the low acidity. He was discharged asymptomatic after conservative treatment.

Three weeks before the present admission, abdominal pain returned and he noted considerable diarrhea during that time.

He drank a half pint of whisky per day and smoked about ten cigarettes. The family history was not remarkable. On physical examination the only abnormality noted was mild tenderness in the epigastrium and the right upper quadrant of the abdomen.

An upper gastrointestinal tract roentgenographic examination on February 17, 1963, showed a large active duodenal ulcer with disturbances in the motility pattern of the small bowel. A second gastrointestinal series on March 15, 1963, showed a duodenal ulcer and abnormal small bowel pattern and motility. Studies of the blood showed the hemoglobin was 15.1 gm per 100 ml, leukocytes 9,900 per cu mm, a serologic test positive for syphilis, serum calcium 9.7 mg per 100 ml, serum phosphorus 5.2 mg per 100 ml, serum potassium 4.5 mEq per liter, amylase 102 units, and a normal glucose tolerance curve. The results of 12-hour gastric anal-

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Figure 1.—Gastric mucosa with increase in parietal cells ($\times 40$).

ysis on several occasions are listed in Table 1. The xylose absorption, from a 260 ml five-hour specimen of urine was 7.8 gm (normal 5.3 to 7.7 gm).

The patient was admitted to the medical service, where a clinical diagnosis of Zollinger-Ellison syndrome was made in light of the presence of duodenal ulcers, large total 12-hour gastric volumes, a large amount of free hydrochloric acid formed in the stomach, diarrhea and the abnormalities shown in the small bowel by x-ray films. At abdominal laparotomy April 25 an ulcer was seen in the first portion of the duodenum. Two suspicious-looking lymph nodes at the head of the pancreas were normal on frozen section. Two nodules, each measuring approximately 0.5 centimeter, were located in the tail of the pancreas. The tail of the pancreas was resected with splenectomy; however, no diagnosis of neoplasm could be made from frozen section. Vagotomy and high subtotal gastric resection and gastrojejunostomy were carried out. The duodenal and proximal jejunal lumina were visualized and palpated but no evidence of tumor was observed. Postoperatively, the acidity of the gastric aspirate was low (Table 1). The patient was discharged May 14, 1963.

Pathologic examination. The sections of the pan-

TABLE 1.—Results of Gastric Analysis on 12-Hour Overnight Gastric Aspirations

Date	Total Volume	(Units per 100 ml of Gastric Juice)	
		Total Acid	Free Acid
‡10-18-62.....	1,180	7	0
3-19-63.....	2,600	120	103
3-26-63.....	4,550	105	50
*4-30-63.....	820	37	0
*5-9-63.....	145	5	0
*6-5-63.....	1,100	14	0

†Admission elsewhere.

*Postoperative.

TABLE 2.—Results of Hollander Test—6/12/63

Minutes	Blood Glucose (mg %)	(Units HC1/100 cc Gastric Juice)	
		Free Acid	Total Acid
15.....	.....	0	10
30.....	74	0	10
45.....	.....	0	10
60.....	5	0	12
75.....	.....	0	12
90.....	21	14	30
105.....	.....	8	28
120.....	57	0	18
135.....	.....	2.7	17.7
150.....	58	2.4	17.4

creas showed hyperplasia of islet cells with an increase in the total volume of islet cells. An increase in the parietal cells was noted throughout the gastric mucosa (Figure 1).

The patient was readmitted June 3, 1963, about three weeks after discharge, complaining of a continuous cramping pain in the right upper quadrant with occasional vomiting but no hematemesis or melena.

The patient weighed 140 pounds. There was some tenderness in the epigastrium and right subcostal areas. The hemoglobin value and hematocrit at the time of admission were within normal limits and the serum amylase was 120 units. Gastric analysis showed a total 12-hour volume of 1,100 ml and total acidity of 14 units, with free hydrochloric acid zero. A Hollander test was interpreted as positive. After the test was begun, specimens for blood sugar determinations were taken every 30 minutes and gastric aspirations every 15 minutes for two and a half hours. The results are listed in Table 2. An upper gastrointestinal tract roentgen examination revealed no marginal ulcer; however, one was seen on gastroscopy.

At operation June 19, 1963, a posterior marginal ulcer, perforated and walled off, was observed. No intact vagi were found. Total gastrectomy, esophagojejunostomy and end-to-side jejunojejunostomy of Roux-en-y type were carried out. The postoperative course was complicated by infection of the wound and an episode of partial obstruction of the small bowel. At the time this paper was written, the

patient was being examined periodically in the clinic. His general health was good and his body weight was steady at 138 pounds.

Discussion

In the etiology of the Zollinger-Ellison syndrome the offending cell was originally considered to be the alpha cell in the islets of Langerhans. It was suggested that glucagon, the antagonist to insulin, in overproduction caused the pronounced gastric hypersecretion.¹⁵ It is now known that glucagon depresses both gastric secretions and motility and is not ulcerogenic.^{1,4,11} The majority of opinion favors the alpha cell theory. However, since absolute proof is lacking, gamma and delta cells must be considered. Diagnosis of these tumors from microscopic examination is difficult, but electromicroscopic pictures are more convincing of the islet cell origin of the cells.⁹

Gregory and coworkers³ extracted a potent gastrin-like secretagogue from non-beta islet cell tumors and lesions metastatic from them. It is presently felt that the non-beta islet cell tumor produces gastrin, which stimulates the stomach acid production and ulcerogenesis. Zollinger and Elliott¹⁴ obtained a gastrin-like secretagogue on bioassay of the atrophied pancreas of a patient with hyperplasia and proliferation of islet tissue. A cycle was suggested of chronic calcific pancreatitis with acinar atrophy, islet proliferation and hyperplasia with secretion of a gastrin-like substance, gastric hypersecretion with recurrent ulceration, and acid stimulation of the duodenum to release secretin, which stimulates an already damaged pancreas.^{10,14}

Histochemical staining of the gastric mucosa of patients with ulcerogenic tumor revealed hyperplastic changes in the gastric glands which may extend down to include the pylorus. A decided increase in the number of parietal cells was noted.^{6,11}

The clinical diagnosis may be confusing. There are many conditions which mimic ulcerogenic tumors; however, the reported cases have not changed the original description of the ulcerogenic syndrome. The onset of symptoms is reported as most common in the fourth and fifth decades of life with a wide range in age at onset. The sex distribution is about equal. The symptoms are related to the high output of acid gastric juice, with the tumor mass rarely the cause of complaint.¹² At present, the large volume of gastric secretion is the only criterion that is more than suggestive of a non-beta islet cell tumor, and the tumor must be suspected when the 12-hour night secretion approaches 2,000 ml, and frequently greater volumes are recorded.¹⁴ The high amount of acid may cause the most characteristic and diagnostic clinical feature of this syn-

drome—that is, the appearance of a jejunal ulcer just distal to the ligament of Treitz in a patient who has not had gastric operation.

Diarrhea may also be associated with this syndrome. Priest and Alexander,⁵ in 1957, noted the significance of an associated enteritis. It occurs in one-third of these patients with ulcer; and in 10 per cent of recorded cases it is the only symptom. In the case herein reported, diarrhea was present and x-ray studies revealed disturbance in the motility pattern. The diarrhea was not intractable. Serum potassium and results of a xylose absorption test were within normal limits. The sprue-like picture did not occur. It may develop due to inactivation of lipase and trypsin from a low pH in the duodenum and jejunum, produced by the large amount of gastric secretions. The mechanism is not clear. The diarrhea may be due to a direct hormonal effect on the small intestine or to irritation of that organ from the large amounts of acid gastric secretion.

The main consideration in the choice of surgical procedure in the present case was difficulty in establishing the pathological diagnosis—that is, no tumor was seen. Zollinger¹⁴ observed in 132 collected cases of such tumors that 62 per cent were malignant. Also, 40 per cent had metastatic lesions which produced the gastric secretagogue. With 26 per cent of the tumors multiple throughout the pancreas, there are multiple sites for the potential gastric secretagogue in 55 per cent of the cases. He pointed out that the recurrence rate of ulceration following local removal of tumor and radical gastric resection combined with partial removal of the pancreas was about 60 per cent. It was nil following total gastrectomy. Yet the mortality was about the same with all three approaches—about 15 per cent. Therefore, the best protection against recurrent difficulty is total gastrectomy with resection of obvious tumors, especially when located in the tail and body of the pancreas. As with the case reported here, when the clinical history is very suggestive of an ulcerogenic tumor but none is found at operation, resection of the body and tail of the pancreas should be considered. This may establish the presence of either small and diffuse involvement of the islets or hyperplasia.^{13,16}

When recurrent ulcerations develop (which was the situation in the present case at its second admission) despite a previous radical gastric resection, total gastrectomy should be considered. However, in a patient who has had no previous operation, with as positive a clinical diagnosis of Zollinger-Ellison syndrome as the case reported here, are we justified in doing a total gastrectomy without pathological diagnosis?

It is unusual for the surgeon to see ulcerogenic tumor except in those cases of severe ulcer disease

which cannot be controlled by any of the current surgical procedures. Certainly, early recurrent ulceration with pronounced gastric hypersecretion, despite vagotomy and a radical gastric resection, is very suggestive of the Zollinger-Ellison syndrome. Three weeks after discharge, the patient in the present case returned with recurrent ulceration and hypersecretion but a positive Hollander test.

There are other causes of operative failure which imitate ulcerogenic tumors and are far more common. These include incomplete vagotomy and any procedure that interferes with drainage of the antrum.

It must be remembered that recurrent ulcerations may result from ingestion of drugs—for example, cortisone, salicylates or reserpine. More commonly a patient may stimulate gastric secretions by ingestion of alcohol or such caffeine-containing drinks as coffee, tea and cola. Ulcerogenic tumors account for a very small proportion of medical and surgical failures.¹³

Although incomplete vagotomy and possibly alcoholic intake were thought to be factors in the present case, the patient also returned early with an appearance of recurrent ulcer and hypersecretion. With a pathological diagnosis of islet cell hyperplasia and a clinical diagnosis of Zollinger-Ellison syndrome, total gastrectomy would be the procedure of choice.

Irradiation treatment to the remaining stomach to control secretions has been generally unsuccessful. However, the possibility of avoiding total gastrectomy with a combination of radioactive isotopes (P^{32}), chemotherapy and irradiation has been suggested for certain cases in which there were metastatic ulcerogenic tumors.⁸

Summary

A case clinically compatible with the Zollinger-Ellison syndrome with pancreatic islet cell hyperplasia is reported. The pertinent literature is reviewed and the surgical management is discussed.

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GLAUCOMA Secondary to Local Steroid Therapy

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WITH THE WIDESPREAD USE of local steroid therapy for a number of ocular conditions, complications secondary to the treatment have become evident. In recent years, the increasing incidence of serious complications of herpes simplex of the cornea has been laid to activation or stimulation of the virus by steroids.

Recently it has been reported that glaucoma may be a complication of the local use of steroids in the eye.⁴ Reports have noted increase in ocular tension

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associated with at least four different steroids.^{2,3,4} Another steroid was found to cause glaucoma in the cases presented here, and it is probable that this is a potential complication of all these drugs. The incidence of this complication is not yet known.

Reports of Cases

CASE 1. The patient was a white man 52 years of age with complaint of redness of the right eye and sensitivity to light for two days. On examination a low grade aqueous flare was noted in the anterior chamber and there were numerous fine cellular keratic precipitates on the posterior corneal surface. A diagnosis of iritis was made and atropine drops twice a day and Maxidex® (dexamethasone) drops every two hours were prescribed. The response was prompt and the treatment was gradually decreased in frequency. Atropine was discontinued and as the eye was clear the patient was instructed to decrease the Maxidex dosage to zero over the next five days. He reported by phone that he could not keep an appointment the next week but said he had no further problems. About two months later, pain and irritation of the eye developed. At this time, the cornea and anterior chamber were found to be clear. The tension, however, was 39 mm of mercury in the right eye and 17 mm in the left. Gonioscopy showed a wide angle with no synechiae. On questioning, the patient said that, as the Maxidex "felt good," he had continued using it two or three times a day in the right eye. He had not used atropine. He was told not to use Maxidex. Topical instillation of a 0.5 per cent pilocarpine solution was prescribed, and the tension having decreased to 16 mm six days later, this treatment was discontinued. From then on the tension was in a normal range comparable to that in the other eye.

CASE 2. A 46-year-old male physician was seen for a routine refraction. In the preceding five years he had had repeated episodes of redness in either eye which had been diagnosed as episcleritis. Each time, response to topical steroids had been good.

No abnormalities were noted on ocular examination and tension (Schiotz method) was 13 mm of mercury in each eye.

Nine months later redness developed in the right eye and the patient treated himself with Maxidex® (dexamethasone) drops four times a day. Gradual clearing occurred and after about three weeks he stopped using the steroid. Three days later redness developed in the left eye and he presented himself for examination. Episcleritis was noted in the lower half of the globe of the left eye and the right eye was clear. Tension was 27 mm of mercury in the right eye and 17 mm in the left. A tentative

diagnosis of steroid-induced glaucoma in the right eye was made. The right eye was not treated and zinc-phenylephrine drops were infused in the left. Two weeks later the tension was 12 mm in the right eye and 15 in the left. There was some improvement in the episcleritis. The ocular tension remained normal thereafter.

Discussion

Information is accumulating as to serious potential dangers involved in the local use of corticosteroid drugs in the eye. Editorials in two ophthalmic journals have emphasized this problem.^{1,5} The cases herein reported illustrate the danger of causing glaucoma by steroid administration. Many ophthalmologists have been of the opinion that local steroids should not be prescribed until examination with a slitlamp biomicroscope has been carried out. Now, in addition, patients receiving these drugs locally should have periodic determination of ocular tension.

In both of the cases herein reported, tension promptly returned to normal on cessation of steroid therapy, but in these cases the development of glaucoma was discovered early. Evidence suggests that with increased duration of steroid induced glaucoma, the pressure becomes increasingly elevated, with little response to the usual glaucoma medication. It is not known if the condition will become irreversible with longer duration.

In the belief they are harmless, steroid-antibiotic combinations frequently have been prescribed for any ocular redness or irritation, often without a diagnosis. In view of the possible complications recently reported, they should be employed only on definite therapeutic indication.

Summary

Two cases of unilateral glaucoma occurring with the unilateral use of local steroid therapy are presented. In both instances the condition was noted early and ocular pressure returned to normal on cessation of the steroid.

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Megaloblastic Anemia associated with Jejunal Diverticula

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MEGALOBlastic ANEMIA in association with intestinal diverticula is a rare clinical entity but is being recognized with increasing frequency. Taylor¹⁷ described a case of "pernicious anemia" associated with jejunal diverticulosis in 1930. Since then approximately 40 cases of megaloblastic anemia secondary to jejunal diverticula have been reported.* The following case illustrates the interesting features of this disorder and demonstrates the importance of establishing the correct diagnosis by means of the proper laboratory and radiologic studies.

Report of a Case

A 79-year-old Negro man was referred to Los Angeles County Harbor General Hospital on August 11, 1961, because of a 20-pound loss in weight in the preceding seven months and recent discovery that the hemoglobin content was 3.5 gm per 100 ml. For three months before admission he had had anorexia, nausea and "indigestion" with flatulence. On questioning, he said he had not had vomiting, hematemesis, jaundice, diarrhea, melena, gastrointestinal operations or previous treatment for anemia. He said that for eight years he had had numbness and tingling of the lower extremities. His diet had been poor in proteins but was otherwise not unusual. He had always been in good health and had never before been in hospital.

*References Nos. 1, 2, 11, 13.

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The only significant items in the past history were syphilis in 1918 and the finding of bilateral cataracts and macular degeneration at the Harbor General Hospital Eye Clinic in 1958.

On physical examination the patient appeared well developed, fairly well nourished and in no acute distress. The blood pressure, pulse and temperature were within normal limits. Arcus senilis and small cataracts were present bilaterally. There was no scleral icterus. On fundoscopic examination bilateral macular degeneration was observed. There was an aneurysmal dilatation of the right common carotid artery. Minimal atrophy of the papillae of the tongue was noted. The lungs were clear to auscultation. The heart was slightly enlarged and there was a grade II aortic systolic murmur. The liver and spleen were not palpable. A small right inguinal hernia was present. There was no significant enlargement of lymph nodes. The prostate gland was slightly enlarged. Biceps and patellar reflexes were hypoaactive bilaterally. There was decreased vibratory sensation over both lower extremities.

Erythrocytes numbered 1.9 million per cu mm and the proportion of reticulocytes was 1.9 per cent. Hemoglobin content was 6.7 gm per 100 ml and the hematocrit was 22.5 per cent. Leukocytes numbered 4,300 per cu mm with the cell differential within normal range. The red cell indices were: mean corpuscular volume 118 cubic microns, mean corpuscular hemoglobin 35 micromicrograms and mean corpuscular hemoglobin concentration 30 per cent. Microscopic examination of peripheral blood showed moderate macrocytosis, anisocytosis and poikilocytosis and some hypersegmented polymorphonuclear leukocytes. The platelets were adequate. The red blood cell arginase activity was 77 (normal is less than 46 mg of urea nitrogen liberated per 10¹¹ erythrocytes per hour).¹² The serological test for syphilis was weakly reactive. Other studies included the following (per 100 ml): blood urea nitrogen 17 mg, fasting blood sugar 93 mg, uric acid 6.8 mg, serum calcium 8.6 mg, total proteins 6.9 gm (4.4 gm albumin and 2.5 gm globulin), cholesterol 210 mg, serum bilirubin 1.0 mg total with 0.8 mg indirect, serum carotene 78 micrograms and serum iron 80 micrograms with a total iron-binding capacity of 240 mcg. The acid phosphatase was 0.3 units. The urine was negative for glucose, protein and cells. The stool was soft, with no increased fat content, and was negative for occult blood, ova and parasites. A stool culture was negative for pathogenic organisms.

X-ray examination of the chest showed a right hilar mass, which most likely represented an ectatic aorta. Gastric analysis showed some free acid after histamine stimulation, but a similar study, however, six days later showed no free acid. Upper gastro-

intestinal x-ray studies demonstrated multiple large duodenal and upper jejunal diverticula. The remainder of the small bowel was normal. No abnormality was noted in a barium enema examination. Bone marrow aspirate showed megaloblastic erythropoiesis and giant band forms and metamyelocytes. The intestinal absorption of radioiodinated triolein was 7 per cent (normal).

The patient was initially observed while on a regular hospital diet. Serial reticulocyte counts showed no significant response. Urinary excretion of radioactive vitamin B₁₂ (Schilling test) was nil at first, then after administration of intrinsic factor the excretion was 2 per cent (normal 8 per cent or greater). After two courses of tetracycline therapy (500 mg four times a day from September 23 to October 6 and again October 21 to October 26) another Schilling test was performed on November 2, 1961, with a result of 3 per cent excretion (Table 1). At that time the patient was completely asymptomatic, had excellent appetite and had gained 15 pounds in weight. There was excellent reticulocyte response (26.8 per cent on the sixth day) to the cyanocobalamin administered with the Schilling tests. At this time erythrocytes numbered 4.6 million per cu mm, hemoglobin content was 13.7 gm per 100 ml and the hematocrit 41 per cent. Thereafter the patient was observed regularly in the hematology clinic of the hospital, receiving monthly intramuscular injections of 100 micrograms of vitamin B₁₂. His hemogram remained within normal limits. A Schilling test two years later (August 19, 1963) was 0.4 per cent (Table 1).

Comment

In this case the peripheral blood and the bone marrow were characteristic of megaloblastic anemia. The elevated arginase activity in the red blood cells was consistent with this diagnosis.¹² Among the many mechanisms causing megaloblastic anemia, practically all are due to deficiency of vitamin B₁₂ or of folic acid or of both.⁵ Two of the most common in the United States are pernicious anemia and idiopathic steatorrhea. In full-blooded Negroes, pernicious anemia although uncommon is not rare.¹⁵ In the present case the results of the Schilling test with intrinsic factor and the presence of free acid in the gastric juice ruled out this diagnosis. The normal stools, absence of diarrhea, normal serum carotene, and normal radioiodinated triolein test^{4,7,14} would make the diagnosis of idiopathic steatorrhea unlikely.

Repeated reticulocyte counts were done while the patient was on a regular hospital diet. Absence of significant reticulocyte response indicated that the anemia was most likely not simply due to dietary lack of vitamin B₁₂ or of folic acid.

TABLE 1.—Urinary Excretion of Radioactive Vitamin B₁₂ (Schilling Test)

Date	Per Cent excretion in urine in 24 hrs.*
Sept. 7, 1961.... Without intrinsic factor	0
Sept. 12, 1961.. With intrinsic factor	2.0
Nov. 2, 1961..... After therapy with tetracycline	8.0
Aug. 19, 1963.... Without intrinsic factor	0.4

*Normal 24-hour urinary excretion of Co⁵⁷B₁₂ is greater than 8 per cent in this laboratory.

There was no history of ingestion of phenylbutazone or anticonvulsant drug, which may cause a megaloblastic anemia.^{3,13} Megaloblastic change may occur in congenital and acquired hemolytic states such as hereditary spherocytosis, thalassemia, hemoglobinopathies, Coombs-positive hemolytic anemias and paroxysmal nocturnal hemoglobinuria.⁹ With bilirubin content in normal range and an absence of reticulocytosis until cyanocobalamin was administered parenterally, there was no evidence of an overt hemolytic process in this patient. The normal results of the Schilling test after tetracycline and the absence of proteinuria excluded the possibility of a selective¹⁰ or familial⁶ malabsorption of vitamin B₁₂, which is probably due to a deficiency of a factor in the succus entericus.

The gastrointestinal x-ray studies revealed multiple large duodenal and jejunal diverticula. The studies also determined that there were no other gross pathological changes in the gastrointestinal tract such as strictures and blind loops. After broad spectrum antibiotic therapy with tetracycline, the patient's general condition and weight improved, anemia abated and the absorption of vitamin B₁₂ was demonstrated to be normal by the Schilling test. The most likely mechanism for this improvement is that the tetracycline destroyed the intestinal bacteria responsible for impairing absorption of or utilizing the vitamin B₁₂.^{7,16,18} The result of the Schilling test two years after the course of tetracycline therapy (0.4 per cent excretion) indicated that the effect of the treatment was, as expected, temporary. Thus, continued parenteral vitamin B₁₂ therapy is necessary, as if the patient had pernicious anemia, although the underlying mechanism for the malabsorption of vitamin B₁₂ of course is clearly different. Surgical resection of the diverticula might be effective,^{1,11} but in this patient is not indicated. Intriguing, but unknown, factors are the duration of the diverticula and the causes for the apparent change in bacterial flora.

Summary

A case of megaloblastic anemia associated with duodenal and jejunal diverticula occurring in an

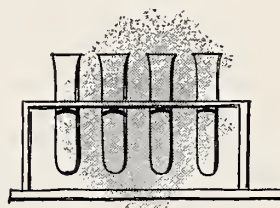
elderly Negro man is presented. Studies with radioactive vitamin B₁₂ and gastrointestinal x-rays clearly established the diagnosis. Parenteral maintenance therapy with vitamin B₁₂ is required as in pernicious anemia, although the pathophysiology of vitamin B₁₂ absorption is different.

Harbor General Hospital, 1000 W. Carson Street, Torrance, California 90509 (Tanaka).

ADDENDUM: After this manuscript was submitted, a similar case in an 83-year-old Caucasian man was studied.

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Report of the SCIENTIFIC BOARD

Use of Measles Vaccine

DURING THE PAST ten years 406,051 cases of measles have been reported to the State Department of Public Health in California. The case rate per 100,000 population in 1954 was 480. It has fluctuated since then between a high of 530 in 1955 and a low of 131 in 1963 (See Table 1).

In the past ten years measles has caused 202 deaths in California. The death rate has fluctuated between 0.1 and 0.3 per 100,000 population during this period. There have been 775 reported cases of measles encephalitis during the past ten years. The rate of encephalitis per 1,000 cases of measles has risen gradually from 1.02 in 1954 to 3.77 in 1963 and there have been 76 deaths from this disease in that period. This represents about a ten per cent mortality rate for measles encephalitis and it is estimated that ten per cent of those who recover from measles encephalitis have residual sequelae.

These data indicate the desirability of measles vaccination for all infants and children. The following statement represents the most recent information on the use of measles vaccine as promulgated by the U.S. Public Health Service Surgeon General's Advisory Committee on Immunization Practices.

Live attenuated measles virus vaccine was first tested in 1953 and since then it has been given to

several million persons in the United States either alone or in combination with gamma globulin. The vaccine induces active immunity following a single dose and produces in the recipient a mild or inapparent, non-communicable measles infection. Although in the majority of those who receive it the symptoms are minimal, approximately 30 to 40 per cent of them experience fever of 103°F or greater beginning about the sixth day and lasting 2 to 5 days. In 30 to 60 per cent of persons vaccinated, a modified measles rash appears, beginning with or after the subsidence of fever. In a few, cough, coryza and Koplik spots develop. An antibody response equivalent to that seen in regular measles develops in over 95 per cent of susceptible children. Measured as late as four years later the antibody levels induced by the vaccine have demonstrated a stability equivalent to that following the natural disease.

If standardized measles immune globulin is given in the recommended dose at the same time as the live attenuated vaccine but at a different site and with a separate syringe, clinical reactions to the vaccine are sharply reduced. In only about 15 per cent of persons so treated does fever exceed 103°F. Also the duration of fever is shortened and the incidence of rash is reduced. Although the frequency of serological conversion is the same as that following live attenuated vaccine alone, the level of induced antibody that is attained appears to be decreased. To date, there have been no reports of encephalitis or other serious reactions following the administration of the live attenuated vaccine to normal children.

Inactivated measles virus vaccine has been administered in a three-dose schedule at monthly intervals. Reactions to this vaccine are minor. Serological conversion after three monthly doses of inactivated vaccine is induced in 90 per cent or more of susceptible children. Antibody titers are distinctly lower than those following the live vaccine, and in most cases decline to undetectable levels over the following year. However, in children without detectable

Prepared by Bureau of Communicable Diseases, California State Department of Public Health, for the Committee on Scientific Information, California Medical Association.

TABLE 1.—*Reported Civilian Cases of Measles and Deaths Due to Measles in California, by year, 1954 through 1963*

	No. of Cases	No. of Deaths*	Case Rate Per 100,000	Death Rate Per 100,000
1954.....	60,029	13	479.58	0.10
1955.....	68,961	37	530.31	0.28
1956.....	32,741	14	241.08	0.10
1957.....	53,543	27	377.68	0.19
1958.....	36,231	13	245.78	0.09
1959.....	41,018	30	268.30	0.20
1960.....	22,684	12	143.00	0.08
1961.....	39,201	24	238.26	0.15
1962.....	28,585	14	167.71	0.08
1963.....	23,058	18†	130.46	0.10
	406,051	202		

*Includes deaths from measles encephalitis.

†Preliminary.

Source: California State Department of Public Health Morbidity and Death Records.

antibody a year after receiving the inactivated vaccine, a fourth dose of vaccine will evoke a booster response.

If live attenuated vaccine is administered one to three months after one or two doses of inactivated vaccine, clinical reactions caused by the live vaccine are sharply reduced. Resultant antibody titers are sharply boosted over those produced by the inactivated vaccine alone and appear to be equivalent to those observed following the administration of live vaccine. Fever above 103°F occurs in less than 10 per cent of cases. Rash, cough and coryza are rarely observed. Serological conversion occurs in 95 per cent of persons to whom this combination is given, and antibody has been shown to persist for at least 14 months in 90 per cent of this group.

Measles vaccine is indicated primarily for children, for without it 90 per cent of them will at some time have clinically evident measles. The largest proportion of cases will occur among those under 15 years of age with the greatest number of cases in the 2 to 6-year-old age group. Only occasionally do cases occur among adults. Vaccine should be administered only to those without a history of measles. Infants younger than nine months fre-

quently do not respond to immunization with the live attenuated vaccine, owing to the presence of residual maternal antibody. Vaccination of adults is rarely indicated, since all but a very small percentage are immune.

Immunization against measles is recommended for all children and is particularly recommended for those in whom natural measles infection might entail high risk of serious complications. The high risk group would include children in institutions and those with chronic diseases such as cystic fibrosis, tuberculosis, heart disease, asthma and other chronic pulmonary diseases.

The protective effect conferred by either vaccine when given after exposure to the natural disease has not been adequately evaluated. However, live attenuated vaccine administered only a few days previous to exposure appears to confer substantial protection.

There are four different dosage schedules which can be considered for use at the present time in the United States.

1. Live attenuated vaccine—one dose.
2. Live attenuated vaccine plus measles immune globulin—one dose of vaccine plus globulin (.01 ml per pound of body weight). Live attenuated vaccine may be administered safely with or without the simultaneous administration of measles immune globulin. However, if it is given without measles immune globulin, the chances of febrile reactions are greater.
3. Inactivated vaccine—three doses one month apart. In view of the rapid fall-off in antibody titer and evidence of decreasing immunity, use of this vaccine is preferred only for special groups in which live attenuated vaccine is contraindicated.
4. Inactivated vaccine followed by live attenuated vaccine—one to two doses of inactivated vaccine followed in one to three months by one dose of live attenuated vaccine. For infants, three doses of inactivated vaccine at monthly intervals followed by one dose of live attenuated vaccine at 9 to 12 months of age.



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**California
Medicine**



EDITORIAL

1965 Annual Session

MARCH 28-31, the California Medical Association will again stage its Annual Session, the 94th in the 109 years of the organization's existence.

Aged in the years, this meeting promises many good things and great satisfaction to all members who will take a few days from their daily tasks to attend and participate.

Scientifically the meeting promises an outstanding series of papers, medical motion pictures, closed-circuit television demonstrations, scientific exhibits and the annual pathological and radiological conferences devoted to the study of cancer. As a main subject, the meeting will concentrate on virology at the general sessions and on subjects of current interest in the specialty section meetings which will continue throughout the four-day period. Five of the nation's outstanding experts in virology have accepted CMA's invitation to present the latest and most important developments in this field. (See page 67.)

A large display of technical exhibits will also cater to the scientifically minded participants. The facilities of San Francisco's Fairmont Hotel Grand ball room will be used for these practical reminders of what is new, what is effective and what is available in medications, apparatus and allied services.

Evident this year on an increasing scale will be the participation of other scientific groups in the programs planned by the California Medical Association. One of the main items in the prospectus of the CMA Scientific Board was that representatives of other scientific bodies, principally medical specialty societies, would be encouraged to devote at least a portion of their time and talents to the

scientific presentations arranged by the CMA each year for this, the largest medical meeting in the state. Within its first few years the Scientific Board and its active committees have more than fulfilled this promise and members may anticipate a continued trend in this direction. In its makeup the Scientific Board numbers nearly half of its members as representatives of other scientific bodies and it is gratifying to realize that these members are not only active but enthusiastic in their attention to the scientific affairs and meetings of the California Medical Association.

For guest speakers an outstanding list of experts has been selected. Their names appear elsewhere in this issue and need no repetition here. It is obvious, however, from their names and backgrounds, that they will make this meeting one to be enjoyed and treasured.

All scientific activities of the meeting will be housed in the Fairmont Hotel, San Francisco, while all business affairs, including the House of Delegates and the Council, will be based directly across the street at the Mark Hopkins Hotel.

The Council will, as required in the Bylaws of the Association, meet each day during the Annual Session. It will play host to a number of representatives of medical schools, departments of the State of California and speakers for a number of allied organizations which share interests with the CMA. Council meetings will, as usual, be open to all members, although it should be stated here that following the opening of the Annual Session most Council meetings are held at early morning breakfast sessions which cannot accommodate a large number of guests and where the meal function must be limited to members of the Council and essential staff members.

The House of Delegates will hold its meetings in the Room of the Dons and the Peacock Court of the Mark Hopkins Hotel. These rooms have proved their worth in housing this body in past years when a considerably larger number of Delegates than today had to be housed.

Membership of the House of Delegates in recent years has been and continues to be a subject of great interest in all parts of the state. A peak membership of 443, including 33 serving ex-officio, was reached in 1963 and proved to be, as might be expected, an unwieldy size because of its bulk. Amendments to the Constitution and Bylaws were adopted that year which had the effect of decreasing the membership in the House and reducing the representation, in many instances, of component medical societies in the range of 200 or more members. At the same time, 18 members of the Scientific Board were added to the ex-officio representation, so that the 1964 membership totaled 320, including 68 ex-officio representatives, some with a vote and some without.

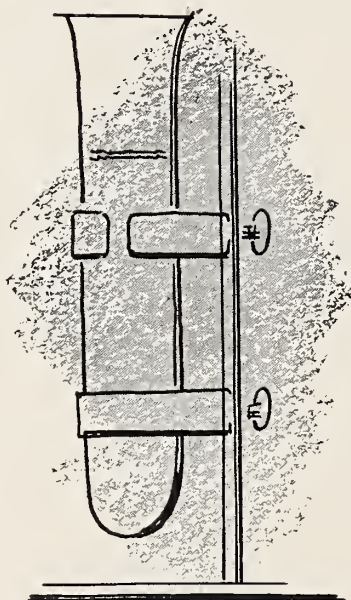
Without further changes in representation, the 1965 House of Delegates will total 328 members, of whom 70 will be ex-officio. All officers of the Association, all members of the Council and all past presidents, including one honorary past president, serve as ex-officio members of the House.

In 1964 additional Bylaw amendments were introduced and referred to an ad hoc committee of the House of Delegates for study. These proposed amendments would alter the size of the total body and would call for changes in the representation of the component medical societies. A report by

this ad hoc committee will be presented to this year's body for action.

California is an ever-growing state and the medical population follows the same trend. Under these conditions the CMA's House of Delegates is bound to continue increasing in size to the point of unwieldiness again unless some acceptable pattern of representation is established and followed. Obviously, all component societies must be represented in the total body. Likewise, it has always been thought that members of the Council, which serves as the action body for the House of Delegates throughout the year, must have a voice in the policy-making body. In addition, in the past two years representation has been provided for Delegates from the Scientific Board, so that the interest of the CMA members in the scientific side of their Association may be represented.

It is to be hoped that the ad hoc committee of the House of Delegates, which has taken its assignment seriously, will be able to evolve a workable, practical and fair solution to the problem of size, so that all areas, all segments and all interests of the California Medical Association may be represented in the policy-making House of Delegates. Likewise, it is desirable that a pattern be established which can be used for at least the next decade, so that this may not become an ever-recurring problem.



The President's Page



The Blue Shield Concept

MORE THAN 1,300 organizations provide health care insurance programs for a total of 145,000,000 Americans. One of them is Blue Shield. It is unique in that its sponsors are the men and women most vitally involved in health care—America's physicians.

Blue Shield also is unique in that each of its 34 plans, inside and outside of the United States, is sponsored and directed by medicine locally, thus allowing for great adaptability in meeting health needs of many different areas.

In 1963, Blue Shield paid more than \$1,000,000,000 nationally for professional services provided to its subscribers. It provides 34 per cent of the medical-surgical prepayment protection in the United States today and it covers 26 per cent of the population.

This is a pretty good manifestation of the people's confidence in and preference for voluntary health insurance plans. And, perhaps, it could be considered their "mandate" for continuing the private practice of medicine in this country.

The first statewide physician-sponsored prepaid health care plan was pioneered 25 years ago by the California Medical Association. It was called California Physicians' Service. It was organized because the medical profession recognized the distressing financial and emotional strain inflicted on patients by unexpected medical expenses and felt that some way had to be found to soften the impact.

CPS-Blue Shield's infancy was rough. In 1939 the concept of prepaid medical care was startling and daring. Insurance companies viewed its future with skepticism—to say the least. Underwriting health care protection just wasn't practical, they said. And for a while it looked as if they were right. Too many dollars were paid out. Too few were coming in. But, by trial and error, physician-trustees of the early plans were able to build the sound actuarial foundation that exists today.

Often called the "physician's plan," Blue Shield succeeded because medicine was behind it. Physicians both underwrote it and sponsored it. From all over the United States they have given incalculable hours of their time as directors and trustees of the Blue Shield plans.

Why? To push medicine into the insurance business? Obviously not. They serve Blue Shield without pay and, in keeping with their philosophy that providing health care coverage is a service and not a business, Blue Shield is operated on a non-profit basis.

Since it is sponsored by physicians who keep in close touch with changing health care needs, Blue Shield offers great flexibility. Its programs do not suffer from the rigidity too often found in programs born of bureaucracies.

Our CPS continues to pioneer in the field of health care. For example, in 1963 CPS undertook an experimental prepaid medical care plan for recipients of public assistance in Santa Barbara County, working with the State Department of Social Welfare. This cooperative venture is working out well. The department knows costs of care in advance since it pays premiums to CPS on recipients' behalf and physicians know what their fees will be.

In another area, CPS is the fiscal administrator of the original "medicare" program, which covers military personnel and their dependents. Among other activities, CPS has launched experimental programs for post-hospitalization convalescent care and coverage for residents of retirement communities.

CPS-Blue Shield plans form the most impressive evidence ever supplied by medicine that the medical profession is capable of providing the finest health care in the world at the most reasonable cost possible.

These programs are providing health care to the millions NOW! What a contrast to the beguiling but unbaked pie-in-the-sky the national administration is whooping up as a health panacea for the aged.

James C. Doyle

California Medical Association



NOTICES AND REPORTS

The Role of Medicine in Society

Excerpts from the
Second Progress Report of the Committee to
Study the Role of Medicine in Society,
California Medical Education and Research Foundation

Preamble

SINCE ITS FORMATION over one hundred years ago, the California Medical Association has been dedicated to the improvement of the health of the public. This ever-present concern has made the Association, and the medical profession of the State which it represents, an acknowledged positive and affirmative force in maintaining, promoting, and restoring the health of the people of our State. Its social and scientific contributions have created many unprecedented examples from which both the public and the profession throughout the country have benefited. The benefits of these advances have been translated into positive programs of health care in the public's behalf.

The physicians of California, like those of the rest of the United States, have historically striven to develop an effective, rational, and practical system of medical education and medical practice which is consistent with the objectives of society and with the scientific framework of a dynamic profession.

The two basic tenets of the profession in the fulfillment of its role in society have been "be a good doctor" and "be a good citizen." These articles of faith have been and always will be the driving forces which identify the physician with the main-

stream of the culture of which he is an integral part. If the expectations of the profession and those of society are to be realized, the exchange of ideas between the physician and the culture in which he lives must be strengthened and disquietudes resolved.

This Progress Report is a further step in achieving this goal.

Foreword

The Study of the Role of Medicine in Society was undertaken at the request of the Council of the California Medical Association, and approved by the House of Delegates in March, 1963. It was referred to the California Medical Education and Research Foundation which appointed a special committee, consisting of the directors of the Foundation and other active members of the Association whose awareness and knowledge of, and involvement in, some of the issues and problems under study would enable them to make a significant contribution to the study. In March, 1964, the Committee to Study the Role of Medicine in Society presented its first progress report* to the CMA House of Delegates, which commended the progress the Committee had made, and encouraged its continuing efforts.

The *Second Progress Report*, to be presented to the House of Delegates in March, 1965, discusses

*Sherman, Samuel R.: The role of medicine in society, Calif. Med., 100:476-478, June, 1964.

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in greater depth the issues discussed, interrelationships discovered, and insights gained, during two years of the study. It also contains a number of observations, findings, and conclusions which merit the attention and consideration of physicians. The Committee hopes that this report will be sufficiently informative to serve as a catalyst for the reexamination and reorientation of certain personal and collective philosophies and attitudes which may have served as obstacles to the development of a more effective role of medicine in society, and which may have contributed to a diminishing capacity of the profession to exert the dynamic leadership which society expects of it.

If the report were solely a summary of the major issues and interrelationships which exist, it would not have accomplished its purpose, nor would some of its objectives have been realized if it were merely an argumentative and defensive treatise. To have glorified medicine's contributions and strengths, and to have minimized its weaknesses, would indeed have been an admission and evidence of weakness. However, in examining medicine's shortcomings and in unfolding new horizons toward which all physicians should react, the Committee believes that the profession's present and future vitality will be recognized and assured. The forthcoming report suggests directions and goals toward which medicine can work as an integral and interrelated part of society. The Committee's concern is not whether *all* physicians can agree with its findings, but whether they can agree with the candor of its expression and the objectivity of its discernments. In the final analysis, this *Second Progress Report* represents the beginning of the rededication of efforts to blend the interests of the physician, the medical and social sciences and of the public in order to formulate contemporary approaches to health care and to delineate future contributions in this direction.

SAMUEL R. SHERMAN, M.D.
Chairman

A. Objectives of the Study

Objectives of the study are to:

Study and to explore the nature of existing relationships between the medical profession and society;

Examine the problems, issues, and developments which are of concern to the medical profession and to the public in the rendition and receipt of medical care;

Delineate the reciprocal obligations and responsibilities of the medical profession, of medical educators, and of society, and the communication of ideas and ideals among them;

Inquire into the demands and needs for medical care among the public and its various segments;

Attempt to reconcile society's failure to understand the programs and policy decisions of medicine with the aims and objectives of the profession in providing the highest quality of medical care to the public;

Determine those methods, techniques, and opportunities through which the medical profession can best provide the highest quality of medical care to the people it serves;

Re-evaluate programs and policies in the light of medical advances and technological and social changes which affect medicine's relationships to the individual, the community and its subgroups, and society as a whole;

Explore the findings of other disciplines, particularly those in the behavioral sciences, in order to ascertain how the products of other research can be utilized by the medical profession; and

Determine how the amalgam of interests of the medical and social sciences and the public can coalesce to formulate contemporary approaches to, and future directions in, health care.

Some Specific Suggestions and Recommendations

The section on "Issues, Interrelationships, and Insights" examines some findings and recommendations with respect to public policy, economic issues, personalization in patient care, medical manpower, medical education and related topics. The recommendations are general, and pertain primarily to attitudes and aims which the Committee believes the profession could adopt. The Committee was able to identify a number of specific policy questions which need to be answered, some points of semantic confusion which should be clarified, a number of specific actions which might be undertaken to strengthen medicine's role in society, and some specific areas for further study.

The Committee recommends continuation by the CMA of this examination of the role of medicine in society.

B. Policy Decisions which Require Implementation

The medical profession of California has stated in unequivocal terms that opportunity should exist for access to medical care. This policy decision should be rigorously pursued, and its intent implemented at every level of professional activity. There should be no question of the availability of ethical professional medical services to everyone.

The medical profession of California has committed itself to the formulation, development, and extension of prepayment and insurance plans which

will support the highest standards of medical care for the public at the most reasonable cost. This must continue.

The medical profession of California has committed itself to programs of on-going research and to continuing medical education. These efforts should be expanded and new and better ways sought to guide physicians in fulfilling their responsibilities to patients and to society.

C. Actions to be Undertaken Now

In the course of the Committee discussions, there appeared a number of actions which should be undertaken by the California Medical Association as soon as possible. These are as follows:

1. Encourage the establishment of an educational program (perhaps in the form of "care of patient" workshops at component society level) which will help to make every practicing physician recognize his roles as a personal physician, which will involve every facet of patient care—including paramedical personnel, and which may reverse the trend to "depersonalization" in medical care.

2. Provide continuing liaison with labor leaders, social service leaders and other community representatives for the purpose of mutual education with respect to each other's goals, problems, and semantic terminology and with the aim of undertaking cooperative efforts toward common goals.

3. Stimulate still larger numbers of practicing physicians to participate in the affairs of all organizations concerned with the social and economic aspects of medical care.

4. Engage greater numbers of physicians in the activities of the California Medical Association and of component medical societies, so that enlightened views and insights may assist the medical profession in the formulation of program and policy actions.

D. Areas for Further Study

The Committee suggests three specific broad areas which it believes require further study in some depth if medicine is to understand, achieve and maintain its optimal role in society. These are as follows:

1. *Achieving an Appropriate Role of Leadership in Medical Care*

If the medical profession is to continue an appropriate role of leadership in medical care it must anticipate problems before they arise or become acute, and must devise appropriate and acceptable solutions for those emerging problems. This will require closer knowledge of the beliefs and attitudes prevailing among physicians, as well

as the expectations of people in various segments of society and various social situations, with respect to specific problems in medical care.

Problems suggested by various "third parties" should be identified; a differentiation should be made between problems due to a vacuum of leadership in an evolutionary situation, those involving a trend in cultural institutions and those which involve a planned attack on the medical profession.

Each problem should be met with an appropriate plan of action. New methods will need to be found to keep members of the medical profession informed, on a continuing basis, of these attitudes, issues and problems. Only as such studies are made and appropriate action implemented, will the medical profession be able to increase its appropriate role of leadership in medical care.

2. *Academic Medicine and Practicing Medicine*

A careful study in depth should be made of the "academic" and the "professional" disciplines in a university medical center, the "science" and "art" of medicine in daily practice, scientific research and practical experience as sources of medical knowledge, the physical and biological versus the social and behavioral sciences as applied to medical practice and medical care, and the "gown" and "town" relationships in the practicalities of professional life. Medicine has two roots and is uniquely dependent on both. Stresses which develop between "academic" and "practicing" medicine should be resolved by the philosophy that each seek to afford improved care for the ill as well as counsel and protection for the well.

3. *The Structure of Organized Medicine*

A need to examine the structure of professional medical organizations is evident. An organizational structure which provides greater opportunities and challenge for participation can best develop qualities of leadership. The need is for a structure in which each physician, regardless of specialty or type of practice, can identify with his organization so that the voice of leadership is unified, and is effective, whether it speaks to physicians, or addresses itself to the health problems of society. The Committee recognizes the handicaps of time and of primary orientation of individual physicians in dealing with social, economic and political problems, or with other "third parties" who impetuously attempt to solve these problems. Identification of problems and development of solutions is a difficult task for an organization of individualistic physicians. There is need for a stronger centralized coordination, but it is not clear how the necessary organizational direction and control can be achieved without weakening the responsibilities of individ-

ual physicians or the democratic process within medical societies. The public would probably never tolerate a labor-union type of organization for medical practice or medical care, nor would the medical profession support such a structure. Improving the organizational structure of the profession is important to its survival as a free profession in modern society and warrants immediate careful further study. It appears evident to the Committee that a coordinated planning body which is representative of the medical profession can suggest opportunities for strengthening the structure and the democratic processes of organized medicine.

E. Recommendation for Continuation of this Study

The *Second Progress Report* of the Committee to Study the Role of Medicine in Society suggests many problems which require further formal study and action. Many of these problems relate to matters of policy determination and directives for action. It is recommended that implementation of

recommendations in this report be vested by the Council of the California Medical Association in the existing Commissions and Bureaus of the Association, with the Bureau of Research and Planning assigned to coordinate research and planning on social and economic issues, the Commission on Communications to coordinate communication aspects involving the profession and the public, and the Scientific Board to coordinate matters related to technological advances, curricula, continuing medical education and medical research. Other Commissions and Committees of the Association should be brought into a continuing study as occasions warrant their involvement.

This report has clearly shown the need for further formal studies. It is recommended that an augmented planning section be activated, in the Bureau of Research and Planning, which can continue other aspects of the basic inquiry and which can review, integrate and interpret future trends established by the research arm of the Bureau.

C.M.A. Committee to Study the Role of Medicine in Society, 693 Sutter Street, San Francisco, California 94102.



The Committee on Scientific Assemblies of the
SCIENTIFIC BOARD

presents the

1965
ANNUAL SCIENTIFIC ASSEMBLY

San Francisco, March 28-31, 1965



Featured subject:

VIROLOGY

The current status of virus research

Applied virology

Treatment of virus diseases



LOOK FOR THE COMPLETE SCIENTIFIC
PROGRAM IN THE FEBRUARY ISSUE

For Hotel Reservations, See Page 68

The Cost of Words

THERE IS EVIDENCE that many physicians do not yet recognize the importance and interpretation of certain words that may be used in describing disability in workmen's compensation cases. It is also possible that some physicians are not cognizant that, in addition to the ratings given for objective factors of disability, there is further rating for subjective complaints. The problem of semantics involving the use of such words often leads to increased litigation, which is a detriment to both patient and employer, and further increases the work load of the Industrial Accident Commission.

In 1956, the Industrial Accident Commission adopted definitions describing the degrees of subjective disability along with a description of evaluating such disability, which are printed in the "General Instructions" contained in the official fee schedule.

The defining words *minimal*, *slight*, *moderate*, and *severe* (reflecting the degree of complaint) and terms limiting the type or degree of physical activity (i.e., no heavy lifting, light work only, sedentary work only, etc.) may relate to any type of injury, but become more significant in injuries involving the head, heart or back.

Using a back injury as an example, the standard rating (and its value in dollars) could be approximately reflected as indicated:

<i>Injury</i>	<i>Rating (Per Cent)</i>	<i>Dollar Value</i>
MINIMAL BACK:		
Intermittent slight complaint.....	5	\$ 1,050
Consistent slight complaint.....	10	2,100
SLIGHT BACK:		
Inability to do heavy lifting over 50 pounds.....	20	4,200
Inability to do heavy lifting over 25 pounds.....	35	7,350
MODERATE BACK:		
Light work only (or need to wear a back brace).....	50	10,500
Limited to sedentary work.....	70	14,700
SEVERE BACK:		
Limited to sedentary work requiring frequent rest.....	80-90	16,800-18,900
Inability to perform any type of work.....	100	21,000

The description of symptoms in a medical report as "slight" should receive further qualification, since "slight symptoms" do not necessarily create a "slight back" and might not even produce any handicap in performance. It should also be emphasized that descriptions by the physician indicating a limitation of physical activity should be carefully considered and realistically based, rather than a purely theoretical opinion. As an example, some patients with a successful back fusion have a stronger back and more functional capability than existed previously, and are perfectly capable of doing rather heavy manual labor. In such an instance, it does not appear logical that there should evolve a resultant rating for permanent disability from the misuse or misinterpretation of words or phrases.

It is hoped that by bringing some highlights of this problem to the attention of the members, there will be more careful consideration given to the use of such terms in the future, with additional benefits occurring from final rating determinations that are equally fair to all parties concerned.

COMMITTEE ON OCCUPATIONAL HEALTH
CALIFORNIA MEDICAL ASSOCIATION

SOUTHERN COUNTIES

Presented cooperatively by Southern Counties Medical Societies, Stanford University School of Medicine and the Committee on Continuing Medical Education, California Medical Association. A 13-hour course.

HOST: Orange County Medical Association. **Regional Chairman:** Edward Shanbrom, M.D., Orange County General Hospital, 101 South Manchester, Orange.

INSTITUTE FEE: \$15.00. For additional information contact Continuing Medical Education office, California Medical Association, 693 Sutter Street, San Francisco 94102. All California Medical Association members and their families are cordially invited to attend.

15th ANNUAL regional postgraduate institute

*Disneyland Hotel
Anaheim*

February 25-26, 1965

Advances in Therapeutics

**THURSDAY
FEBRUARY 25**

8:15—*Registration*

9:00-12:30—*Morning Session*

Iatrogenic Diseases—Roy Cohn, M.D., *Moderator*

ANESTHESIA—John Bunker, M.D.

MEDICINE—William Creger, M.D.

NEUROLOGY—Anthony Iannone, M.D.

ORTHOPEDICS—Howard Hatcher, M.D.

PEDIATRICS—Norman Kretchmer, M.D.

RADIOLOGY—Henry Jones, M.D.

2:30-5:30—*Afternoon Session*

Advances in the Treatment of Infectious Diseases

William Creger, M.D., Harold Simon, M.D., Thomas Stamey, M.D.

**FRIDAY
FEBRUARY 26**

9:00-12:30—*Morning Session*

Use of Blood and Blood Products

John Bunker, M.D., Roy Cohn, M.D., William Creger, M.D., Harold Simon, M.D.

2:30-5:30—*Afternoon Session*

Bone Diseases

Howard Hatcher, M.D., Henry Jones, M.D., Norman Kretchmer, M.D.

2:30-5:30—**Concurrent Electives** (limited to 20)

Panel A

Current Concepts in Neuromuscular Pharmacology

Anthony Iannone, M.D.

Panel B

Clinical Estimates of Renal Function in Patient

Selection for Surgical Therapy

Thomas Stamey, M.D.

Clinical Problems in Transplantation and Renal Dialysis

Roy Cohn, M.D.

1964 CONSTITUTIONAL AMENDMENTS FOR ACTION IN 1965

Three amendments to the Constitution were introduced at the final meeting of the 1964 House of Delegates. These are required to lie upon the table until the next regular meeting of the House of Delegates; meanwhile, they must be published in at

least two issues of CALIFORNIA MEDICINE. They will be considered by the appropriate reference committee of the House of Delegates and then will be reported to the members of the House in the 1965 Session.

CONSTITUTIONAL AMENDMENT NO. 1-64

Subject: Composition of Council—Article III,
Part B, Section 9(b)

Introduced by: Carl E. Anderson
Representing: The Council

Resolved: That Article III, Part B, Section 9, paragraph (b) be amended by adding the words shown in italics so that the paragraph shall read as follows:

(b) The president, president-elect, *immediate past president*, speaker and vice-speaker.

‘ ‘ ‘

CONSTITUTIONAL AMENDMENT NO. 2-64

Subject: Composition of Council—Article III,
Part B, Section 9(a)

Introduced by: Chester Herrod, M.D.
Representing: San Francisco

WHEREAS, the present size of the Council is consistent with efficiency, and

WHEREAS, an increase in size may diminish the efficiency of the Council, and

WHEREAS, the number of doctors in California will inevitably increase and thereby increase the size of the Council, and

WHEREAS, a change in the numerical basis for councilor selection is the simplest method of retaining the present size of the Council; now, therefore be it

Resolved: That Article III, Part B, Section 9(a), be amended to read: (New language in italics)

“Each councilor *or subcouncilor* district, as specified in this Constitution, shall be entitled to one councilor for each *sixteen hundred (1600)* active members, or *minor* fraction thereof, according to its membership as of the first day of September of the preceding year; provided that each councilor *or subcouncilor* district shall be entitled to a minimum of one councilor.”

‘ ‘ ‘

CONSTITUTIONAL AMENDMENT NO. 3-64

Subject: Councilor Districts—Article III,
Part B, Section 10

Introduced by: Chester Herrod, M.D.
Representing: San Francisco

WHEREAS, the increasing number of doctors in some counties in California has altered the equilibrium which previously existed in councilor districts, and

WHEREAS, since crowded highways makes attendance from a distance at councilor district caucuses increasingly difficult, and

WHEREAS, the need to redefine councilor districts to recognize population changes and for convenience of delegates is apparent; now, therefore be it

Resolved: That Article III, Part B, Section 10, of the Constitution be amended to read as follows: (New language in italics)

“There are *fourteen (14)* districts as follows:

“District Number One, comprising San Diego County.

“District Number Two, comprising *Orange County*.

“District Number Three, comprising the County of Los Angeles.

“District Number Four, comprising *Imperial, Riverside, San Bernardino, Inyo and Mono Counties*.

“District Number Five, comprising *Ventura and Santa Barbara Counties*.

“District Number Six, comprising *Kern, Kings, Tulare, Fresno, Madera, Merced, Stanislaus, Mariposa, Calaveras, Tuolumne and San Joaquin Counties*.

“District Number Seven, comprising *San Luis Obispo, San Benito, Monterey and Santa Cruz counties*.

“District Number Eight, comprising *Santa Clara and San Mateo counties*.

“District Number Nine, comprising *the County of San Francisco*.

“District Number Ten, comprising *Alameda and Contra Costa Counties*.

“District Number Eleven, comprising *Marin, Solano, Napa, Sonoma, Lake, Mendocino, Humboldt and Del Norte counties*.

“District Number Twelve, comprising *the County of Sacramento*.

“District Number Thirteen, comprising *Amador, Alpine, El Dorado, Placer, Nevada, Sierra, Yuba, Colusa, Sutter, Yolo, Glenn, Butte, Tehama, Trinity, Shasta, Lassen, Plumas, Modoc and Siskiyou counties*.

“District *Number Fourteen*, consisting of any society which is not limited as to geographical area, or the area of which overlaps the area covered by any one or more existing component societies; such society and its members shall not be considered to be members of any other councilor district.”

In Memoriam

FOORD, ALVIN GEORGE, San Marino. Died November 13, 1964, in Pasadena, aged 69, of heart disease. Graduate of Rush Medical College, Chicago, Illinois, 1923. Licensed in California Medical Association, and an associate member Angeles County Medical Association.



GLYER, RICHARD THEODORE, Mountain View. Died December 7, 1964, in Mountain View, aged 82. Graduate of the University of Minnesota Medical School, Minneapolis, 1909. Licensed in California in 1923. Doctor Glyer was a retired member of the Santa Clara County Medical Society and the California Medical Association, and an associate member of the American Medical Association.



HARLAN, MAHLON MOORE, Los Angeles. Died November 15, 1964, aged 41, of heart disease. Graduate of the University of Tennessee College of Medicine, Memphis, 1950. Licensed in California in 1954. Doctor Harlan was a member of the Los Angeles County Medical Association.



KADESKY, DAVID, San Francisco. Died December 1, 1964, aged 72. Graduate of the University of Minnesota Medical School, Minneapolis, 1918. Licensed in California in 1932. Doctor Kadesky was a retired member of the San Francisco Medical Society and the California Medical Association, and an associate member of the American Medical Association.



LADD, ARTHUR C., New York. Died December 1, 1964, in New York City, aged 50. Graduate of the University of Kansas School of Medicine, Lawrence-Kansas City, 1939. Licensed in California in 1941. Doctor Ladd was a member of the San Mateo County Medical Society.



LAMBERT, C. W., Pasadena. Died November 29, 1964, in Pasadena, aged 44, of heart disease. Graduate of Indiana University School of Medicine, Bloomington-Indianapolis, 1943. Licensed in California in 1947. Doctor Lambert was a member of the Los Angeles County Medical Association.



MORISON, CHARLES CAMPBELL, Oakland. Died November 16, 1964, in Berkeley, aged 89, arteriosclerotic cardiovascular disease. Graduate of the University of Nebraska College of Medicine, Omaha, 1903. Licensed in California in 1926. Doctor Morison was a retired member of the Alameda-Contra Costa Medical Association and the California Medical Association, and an associate member of the American Medical Association.



PATRICK, MARCIA ALICE, Los Angeles. Died November 25, 1964, in Pasadena, aged 88, of terminal pneumonia. Graduate of Rush Medical College, Chicago, Illinois, 1913.

Licensed in California in 1914. Doctor Patrick was a retired member of the Los Angeles County Medical Association and the California Medical Association, and an associate member of the American Medical Association.



READ, FRANCIS T., Sacramento. Died November 21, 1964, in Monterey, aged 76. Graduate of Northwestern University Medical School, Chicago, Illinois, 1912. Licensed in California in 1925. Doctor Read was a retired member of the Los Angeles County Medical Association and the California Medical Association, and an associate member of the American Medical Association.



RICKARDS, ROBERT JOSEPH, Monterey Park. Died November 16, 1964, in Los Angeles, aged 47, of complications following surgery. Graduate of the University of Santo Tomas Faculty of Medicine and Surgery, Manila, Philippines, 1942. Licensed in California in 1952. Doctor Rickards was a member of the Los Angeles County Medical Association.



SCHWARTZ, IRVING R., Visalia. Died December 7, 1964, aged 46. Graduate of Vanderbilt University School of Medicine, Nashville, Tennessee, 1942. Licensed in California in 1951. Doctor Schwartz was a member of the Tulare County Medical Society.



SOUTAR, RICHARD GRAY, Sacramento. Died November 14, 1964, in Sacramento, aged 76. Graduate of the University of Oklahoma School of Medicine, Oklahoma City, 1922. Licensed in California in 1924. Doctor Soutar was a member of the Sacramento Society for Medical Improvement.



TAYLOR, FLETCHER BRANDON, Lafayette. Died November 27, 1964, in Oakland, aged 72, of cerebrovascular thrombosis. Graduate of the University of California School of Medicine, Berkeley-San Francisco, 1918. Licensed in California in 1918. Doctor Taylor was a retired member of the Alameda-Contra Costa Medical Association and the California Medical Association, and an associate member of the American Medical Association.



THYSELL, NELS JOHN, Santa Ana. Died November 16, 1964, in Huntington Beach, aged 44. Graduate of the University of Minnesota Medical School, Minneapolis, 1944. Licensed in California in 1945. Doctor Thysell was a member of the Orange County Medical Association.



WILSON, HARRIS RAYMOND, Modesto. Died November 20, 1964, in Modesto, aged 59, of heart disease. Graduate of Loyola University School of Medicine, Chicago, Illinois, 1932. Licensed in California in 1932. Doctor Wilson was a member of the Stanislaus County Medical Society.

PUBLIC HEALTH REPORT

MALCOLM H. MERRILL, M.D., M.P.H.
Director, State Department of Public Health

SINCE 1855, when the California Legislature passed a "Poor Law" which delegated responsibility for the needy sick to the county boards of supervisors, indigent mothers and children have been hospitalized in county hospitals.

In modern times the pressure of increased population, coupled with technological advances in medicine, has brought about the replacement of some of the older institutions by modern well-equipped institutions. Such progress, however, has been far from uniform. While some county hospitals today provide a high level of care, others do not meet minimal accepted standards of modern medical care.

Medical societies, county boards of supervisors and official health agencies, influenced by a growing conviction that regional planning of hospitals is essential, are approaching a consensus that in order to give all citizens access to high quality of medical services there must be a reappraisal of the tradition of segregating patients according to their ability to pay.

Thus, there is increasing attention being given to the concept of planning community health facilities to meet the needs of all citizens and a conviction that adequate hospital planning must be directed to serve the community as an integral whole.

In 1961, the Legislature instructed the State Department of Public Health to collect and analyze data necessary for the development of standards in governmental health services.

As a step in fulfilling this charge, the department is carrying out a study of all tax-supported medical care for children. Because of concern with unusually high maternal and infant death rates among county hospital patients, initial attention was given to maternity and pediatric services in these hospitals.

Guided by objectives, forms and methods which had been developed in cooperation with the California Chapter of the American Academy of Pediatrics, the department undertook a survey of all county hospitals in California during 1962-63. A task force consisting of physicians and other health professionals visited each county hospital to evaluate pediatric and maternity services.

The department's Advisory Committee on Public Medical Care for Children, in reviewing the details of the task force report, has concluded that the present county hospital system is out of step with changing social circumstances and attitudes. Although the report focuses on pediatric and obstetric care, the committee believes that the basic problems are reflected in the medical care of other county hospital patients as well.

In particular, the committee feels the segregation of hospital care of needy patients contributes to the fragmentation of their care, impedes the ability of private medical practitioners to participate more effectively in the care of the needy and interferes with the rational development of community hospital facilities.

In summary, the committee said that segregated county hospitals which serve only the recipient of tax-supported medical care are not providing the quality, scope and flexibility of service possible with integrated community hospitals. It believes that county and voluntary hospital services should become integrated community programs serving the community at large without regard to the patient's ability to pay.

Copies of the full committee report, including its recommendations, have been sent to county medical societies and hospital administrators. Additional copies can be obtained through request to the State Department of Public Health, 2151 Berkeley Way, Berkeley.

It is estimated that some 383,000 births occurred in California during 1964, about 3,000 more than in 1963. However, the birth rate—the number of births per 1,000 population—is estimated to be 21.0 in 1964 as compared with 21.5 the preceding year. The birth rate has thus continued on a downward trend which began in the late months of 1961—a trend which is nationwide.

It is estimated that about 153,000 deaths occurred in California last year, as compared with about 148,000 in 1963. The death rate of 8.4 per 1,000 population was the same as the previous year.

INFORMATION

CMERF

The California Medical Education
and Research Foundation

Its Role on Behalf of the Community

JAMES C. DOYLE, M.D.

President, California Medical Association

IN THE TWO YEARS of its existence the California Medical Education and Research Foundation (CMERF), a non-profit educational corporation sponsored by the California Medical Association, has already achieved some measure of recognition for its contributions in the fields of medical education and socio-economic research. CMERF was born in the fall of 1962, following a realization on the part of the officers of the CMA that there were many areas in which research into the social and economic aspects of medical care was needed, in which support of educational efforts and continuing medical education could be provided, and in which problems of mutual interest and concern to the professional and lay community could be explored. As in the case of many other organizations, the CMA and its House of Delegates recognized that the creation of a foundation would provide an instrument for getting needed funds from donors who could justify their contributions for income tax purposes.

Had funds been otherwise available to support costly projects, it is unlikely that CMERF would have been formed. But the unhappy facts of life are that research is an expensive investment. Studies may cost as much as \$25,000, \$50,000, or \$100,000; some run up into the millions of dollars. And one is never quite sure at the outset whether meaningful results or benefits will result—no matter how thoughtfully a project is conceived or how carefully carried out.

We had a backlog of pressing problems which demanded study; we had requests for funds for educational activities and, through CMA's Bureau of Research and Planning, we had the research capabilities of initiating studies. Shortly after

CMERF saw the light of day, we received a small grant from the Health Information Foundation, now associated with the University of Chicago. Although the grant was only \$2,000, it was unrestricted as to use. This money, together with funds from CMA, enabled us to support a study on the *Financing and Organization of Medical Care in California*, the first study of its character done in this State. It has received wide distribution and is used as a reference source in many schools and by students of medical economics. It has also been of considerable value to committees of our State legislature.

Soon afterward, we received a grant from the U.S. Public Health Service in excess of \$60,000 to conduct a three-year study to determine the feasibility of developing one or more methods whereby the quality of medical care in the office practice of physicians could be evaluated. I am sure that all of you recognize how important the subject of quality of medical care looms in the socio-economics of medical care, how critical some persons and organizations have been of the medical profession's efforts in this regard, and how sensitive an issue it has become in the cost of, and expenditures for, medical care. This unrestricted grant is providing us with an opportunity to involve three county medical societies in a systematic analysis of claims reviewed for selected groups of medical procedures and to attempt to develop criteria which will permit appraisal of the standards of care provided to the public. We are now in the third and final year of our study. Our analysis of the data will eventually help us to determine whether we are on the right track and whether other component medical societies wishing to carry out evaluations of this kind will be able to adopt or to modify the methods used in our study.

What do we expect the study to do for physicians and for patients? The maintenance and improvement of medical services; the institution of special courses of continuing education to correct deficiencies in medical care where they occur; to identify physicians who have special problems in the management of cases and to help them to improve. Above all, we hope to demonstrate that physicians are capable of evaluating the level of care their peers provide, and that they are willing to do so in order to demonstrate their concern for professional improvement and better patient care. Again, this is the first study of its specific kind ever conducted in this country on such a scale. If the results of the study are successful in pointing to one or more methods to evaluate the quality of medical care, we shall have made a contribution not only on behalf of the physicians of California, but of all those in private practice throughout the country. Many medical societies have written to us, asking for our

Presented before the Woman's Auxiliary September 30, 1964, Coronado.

results and for information on our methods of research.

Last year CMERF was approached by the California State Department of Mental Hygiene to help design a study relating to methods to relieve manpower shortages in the field of mental health. As in the previous case, the staff and members of the CMA Bureau of Research and Planning were able to suggest a phased study of the problem, and the result was that CMERF received a grant in the amount of \$15,000 for Part I of the study, which involved the development of a comprehensive bibliography dealing with efforts of the mental health professions and other professions to relieve manpower shortages. This bibliography, now nearing completion, will again be the first one of its kind done nationally. It will contain not only bibliographical information, but the results of part of a study conducted by questionnaire among psychiatrists throughout California and also useful reference data for other researchers in the mental health field. The progress in this phase of the study was so well received that, with funds supplied by the National Institute of Mental Health, the Department of Mental Hygiene awarded CMERF a grant in the amount of \$44,000 for Part II of the study. This part of the study will: (a) make an interpretive analysis of the bibliography; (b) contain papers prepared by leading experts throughout the country; (c) set forth the results of a mail symposium on the several aspects of manpower shortages, and (d) embrace additional materials on this subject.

These two pieces of work (Parts I and II), which have involved considerable research efforts, will be of great value to hundreds of persons and organizations throughout the country, as well as to educational institutions, for the help they give to obtaining a comprehensive view of the problems of recruitment, financing, curriculum and other factors entailed in bringing about care of patients through better utilization of manpower.

Both studies illustrate the contributions a new Foundation can make with relatively small amounts of money as contrasted with the millions spent by other organizations of a similar nature, but whose capabilities or concepts of needed research are not fully realized. There are many other areas of research that are begging for study—but languish for want of money and the opportunity to embark upon them. One which I am very proud to report on, and which is being supported fully by the CMA, is that of "The Role of Medicine in Society," which is being studied by an expanded committee of the board of directors of the Foundation. Many of you have undoubtedly seen the first progress report of the Committee to Study the Role of

Medicine in Society which appeared in the June issue of CALIFORNIA MEDICINE. The objectives of this broad-gauge study are to:

1. Study and to explore the nature of *existing* relationships between the medical profession and society.

2. Examine the problems, issues, and developments which are of concern to the medical profession and to the public in the rendition and receipt of medical care.

3. Delineate the mutual obligations and responsibilities of the medical profession and society, and the communication of ideas and ideals between them.

4. Inquire into the demands and needs for medical care among the public and its various segments.

5. Determine those methods, techniques, and opportunities through which the medical profession can best provide the highest quality of medical care to the people it serves.

6. Reevaluate programs and policies in the light of medical advances and technological and social changes which affect medicine's relationships to the individual, the community, and its subgroups, and society as a whole.

7. Explore the findings of other disciplines, particularly those in the behavioral sciences, in order to ascertain how the products of other research can be utilized by the medical profession.

8. Determine how the amalgam of interests of the medical and social sciences and the public can coalesce to formulate contemporary approaches to, and future directions in, health care.

This study is another concrete demonstration of CMERF's willingness and ability to undertake studies of significant magnitude and, hopefully, to produce results which will benefit the entire medical profession. Our committee, under the chairmanship of Dr. Samuel R. Sherman, has interviewed representatives from a wide variety of private and public organizations, has reviewed and analyzed literally hundreds of documents and publications which have a bearing on its study, and is at present drafting its *Second Progress Report* which will go to the CMA Council and then to the House of Delegates. We believe it will be an important document for physicians to study—one whose recommendations they can apply in their daily practice of medicine and in their relationships with all segments of society. It will discuss the scientific and socio-economic aspects of medical care and will point to the various roles physicians can play in informing the public and themselves of the responsibilities and obligations that they have and that they can assume in modern society.

So far, I have dwelt on the research activities of CMERF to illustrate the fact that our Foundation is fulfilling a role in vitally needed areas of study. Our efforts to date in the field of education have been far from realized due to lack of funds. Even in this respect, however, we have made a good beginning by donating to the California College of Medicine three grants totaling \$38,750. These funds were given to CMERF by Audio-Digest Foundation with the stipulation that they be allocated for educational purposes. We have been most pleased to comply with this request in order that our newest medical school may be in a position to provide loans and scholarships to medical students in need of them.

However, CMERF does not see its role limited to this single aspect of educational support. There are many other educational activities which can be supported or encouraged with benefit to the medical profession. Much more can be done in promoting the supply of adequately trained teachers in medical schools, in formulating new programs of continuing medical education and in developing a program of loans and scholarships for potential medical students who may be deterred from considering medicine as their profession because they do not have the money to go to medical school.

Even though the program of health education and information initiated by CMA is a broad one, there are as yet unrealized opportunities to expand this effort on behalf of the public. A great deal more research is needed in the development of experimental programs to expand the role of voluntary health insurance and the medical services that insurance and prepayment plans can offer to people. Study of the inadequacies of existing health care plans can result in their improvement and afford both the physician and patient opportunities for providing medical care with a minimum of financial deterrents to either of them. I could cite scores of problems that could be investigated and studied, including those relating to the health care of the aged and of migratory workers.

It is just because the physicians of California are in the vanguard of so much that is new and different, and because they respond to social problems that their curiosity is whetted by many possibilities to study problems and issues that arise or which will develop in the future. The existence of a Foundation which reflects their wishes and desires, and which is capable of studying the questions they raise, is an asset which not even a handful of state medical associations throughout the country possess. I believe it is an asset which the Woman's Auxiliary will recognize as well, and will support in the coming years, as the value of our work becomes more and more self-evident.

I am sure that as I have been describing the activities of the California Medical Education and Research Foundation you have been wondering how our Foundation competes with others, particularly AMA-ERF. Let me assure you that we are not competing for the same funds and that we do not necessarily have the same objectives. Of course, all of us compete for dollars no matter what activity we engage in, but this is a decision which you alone can make, based upon the goals you have set for yourselves. It is conceivable that you may wish to engage in special activities on our behalf or, as your funds increase, elect to consider us as a future recipient of some of your contributions. We are interested, of course, in receiving money from any and all sources which will enable the board of directors of CMERF to allocate its funds into those channels that will result in the greatest return in terms of educational support, in medical and related research and in socio-economic studies which in our judgment are needed in the State of California.

As my description of the several studies we have undertaken has undoubtedly shown, their effect will not only be felt in our State, but in the rest of the country as well. Regardless of the decision the Auxiliary makes with regard to the allocation of its funds, our esteem for the work you are doing will not diminish. In bringing the story of CMERF to you, in telling you of its objectives and expectations, we will have achieved a purpose in explaining the role it hopes to fulfill on behalf of medicine and in apprising you of its efforts, so that if in the future you are considering where you might expect the greatest return on your outlay, you will know that CMERF is ready, willing and able to give you its assurances of competence and reliability, it will also be ready, willing and able to gratefully accept your financial support.

I should like to note that, for the fiscal year 1963-1964, private and public expenditures for health care in the United States are estimated to be \$35.4 billion dollars. Of this amount, government expenditures were in excess of \$9 billion, and private philanthropy made up \$818.4 million. The remainder represents private expenditures for health care. The continuing success of the voluntary health insurance mechanism and the voluntary way of giving depends upon a growing and enlightened citizenry to support all reasonable efforts and activities to improve the health care of the American people, and to encourage and to support all valid research and educational efforts which will promote the wellbeing and independence of our people. So vast are the amounts of money needed for research that many individuals, organizations and specialized groups are compelled to seek such aid from federal government. CMERF has accepted such money

because: (1) it was available, (2) it is part of the money we as taxpayers have given to government, (3) if we didn't take it, it would be made available to others who might be less qualified to do the research we are engaged in, and (4) it had no strings attached to it.

If we had our choice, we would by far prefer to accept such monies from private sources in order to involve private giving in concrete research projects and to demonstrate that professional organizations like ours are both capable and interested in such research activities. We believe that, in the creation of the California Medical Education and

Research Foundation, the California Medical Association is providing visible evidence of such a philosophy. Moreover, it is demonstrating that it is dealing with vital issues of concern to the people of California and to the health professions that are dedicated to the alleviation and eradication of disease. Through your many activities, you of the Woman's Auxiliary are demonstrating a similar concern. We salute you for your work, and look forward to the day when we may be able to enjoy a small measure of your financial support for our work.

693 Sutter Street, San Francisco, California 94102.

LETTERS *to the Editor*

The Fetus and Its Environment

THE EXCELLENT WORK of the California Maternal Mortality Study Committee reported by Leon Parrish Fox, M.D., in the CMA of September prompted me to pull out 100 records at random from our files of children born with defects in order to review the prenatal histories. Our figures refute the oft stated belief that causes of defects are not known in most instances.

Of the 100 cases—there were 3 adopted children in which the histories were not known and there were 3 cases in which the pregnancy, delivery and family history appeared normal. This left 94 cases adequately explained. Of the total group 13 per cent had either hypoxia or trauma at birth; 16 per cent had genetic defects or a family history of birth defects. In 34 per cent there were maternal health factors adverse to normal fetal development and in 31 per cent there were unfavorable intrauterine factors. The maternal factors included infections early in pregnancy, drugs, radiation, toxemia, etc. Two striking factors appeared; 6 per cent of the mothers were outside the optimum child bearing period, over 39 or 40 years or under 16 years, and there were 5 older mothers to one younger (15 years). Fifteen per cent of the mothers had a history of psychosis before or during pregnancy, or a severe shock early in pregnancy (such as seeing

one of her children hit by an automobile) or prolonged emotional stress and unhappiness (as one mother said, "I cried for nine months").

Of the intrauterine factors the most common cause was bleeding. Usually this occurred early in pregnancy but it was also associated with placenta praevia and premature separation. Other factors included multiple births, cord entanglements, RH incompatibility and pre- and post-maturity. When the prenatal histories were considered instead of birth weights, it was found that the same factors were operative in both children born prematurely and at term. In other words bleeding early in pregnancy might cause defects and *premature delivery of the fetus* or it might cause defects but the fetus was carried to term. This casts a new light in the subsequent development of premature infants.

The pregnancy study in Kuhai reported by Dr. Bierman* and staff has been reviewed and it will be noted in her figures that for every prenatal death there were two surviving severely handicapped children (there were more than two if lesser degrees were included). The residuum of crippled and retarded children and maternal and fetal mortality are interrelated. This points out the necessity for Obstetrics, Pediatrics, Public Health and other health services to combine their efforts to reduce the chain of events that lead to maternal and fetal mortality and morbidity.

H. E. THELANDER, M.D., *Director*
Child Development Center
Children's Hospital
San Francisco

*Bierman, Jessie M. *et al.*, The community impact of handicaps of prenatal or natal origin, Public Health Reports, 78:10, Oct. 1963.

NEWS & NOTES

NATIONAL • STATE • COUNTY

ALAMEDA

Traveling clinics for mentally retarded children that will serve the rural and semi-rural areas of the entire Northern California area, began operating January 1, with Children's Hospital of the East Bay as its base. The clinics, a five-year demonstration project, will be financed by the United States Children's Bureau through the State of California Bureau of Crippled Children Services. The grant for the first year is \$98,600 and the five-year total will be approximately \$604,000. The project will be known as The Northern California Regional Child Development Center.

The traveling team will include at a minimum the services of a pediatrician or pediatric neurologist, a psychologist, a public health nurse and a social worker. It will be augmented by counterparts and other specialists from the local communities. The emphasis will be on diagnosis and the team will serve as a consultative resource for the local physicians. The demonstration project is designed to stimulate interest and to increase skills of professional persons in caring for children in the rural areas who have developmental and neurological problems.

LOS ANGELES

The Daniel Freeman Hospital and the Los Angeles County Heart Association will co-sponsor a five evening course in **advanced electrocardiography and vectorcardiography** to be given from March 15 through March 19. The principal speakers will be Dr. Arthur Grishman of New York City and Dr. Demetrio Sodi-Pallares of Mexico City.

Inquiries may be directed to Dr. Walter S. Graf, program chairman, the Daniel Freeman Hospital, 333 North Prairie Avenue, Inglewood.

* * *

The second meeting of the **Federation of Western Societies of Neurological Science** will be held in Palm Springs, March 4-7.

Inquiries should be directed to: Dr. Augustus S. Rose, Professor of Medicine (Neurology), U.C.L.A. Medical Center, Los Angeles.

* * *

Establishment of the **Physician's Aid Carlson Fund** to aid the family of Paul E. Carlson, M.D., Los Angeles medical missionary who was killed November 24 by rebel forces in the Congo, was announced November 27 at a press conference at Los Angeles County Medical Association Headquarters.

The fund was founded by the Los Angeles County Medical Association and the Los Angeles County Physician's Aid Association.

Doctor Carlson, 36, was one of 50 American and Belgian hostages massacred in Stanleyville by fanatical rebels.

Surviving are his wife, Lois, and the couple's two children, Wayne, 9, and Lynette, 7, who were reported safe in Bangui, Republic of Central Africa. They are expected to return to the United States soon.

Doctor Carlson, who operated a 65-bed hospital in Wasolo in the Congo, had been in the country a year. Before that he was a surgeon on the staff of the Redondo Beach Medical Clinic.

Initial donations to the Fund included: LACMA—\$2,500; Redondo Beach Medical Clinic—\$1,000; South Bay Medical Center Staff—\$200; and Southwest District of LACMA—\$100.

Persons wishing to contribute should make their checks payable to the Physician's Aid-Carlson Fund. The address is 1234 North Vermont, Los Angeles, California, 90029.

SAN FRANCISCO

Dr. William C. Voorsanger, one of the founders of the San Francisco Tuberculosis and Health Association in 1908, has been awarded a 50-year service pin by the National Tuberculosis Association. He is the ninth person in the history of the organization to receive this honor. Dr. Voorsanger, 88 years of age, still serves as secretary of the San Francisco Association, a post he took "temporarily" at the time the chapter was founded. He also actively carries out his duties as a life director of the organization.

* * *

Dr. Gerson R. Biskind, San Francisco, has been named a trustee of the American Board of Pathologists, which certifies physicians as specialists in pathology.

Dr. Biskind is a founding fellow of the College of American Pathologists and has also served as a director of the American Society of Clinical Pathologists.

SANTA CLARA

An annual lectureship in the name of **Dr. Harold K. Faber** has been established by the Stanford Children's Convalescent Hospital, formerly the Stanford Convalescent Home.

For 39 years Dr. Faber served as medical director of this institution while professor and executive head of the Department of Pediatrics at Stanford University. His dedication and service to the hospital, as well as his scholarly pursuit of the origin of poliomyelitis, will be honored in the first annual Harold K. Faber Lecture, to be held February 6 on the Stanford campus. The first lecture, to be given by Nobel laureate **Dr. Frederick C. Robbins**, is titled "A Biographical Sketch of Poliomyelitis."

GENERAL

Medical assistants wishing to sit for the 1965 national **certification examination** given by the American Association of Medical Assistants must file their applications before February 1, according to Mrs. Mary Kinn, Santa Ana, chairman of AAMA's Certifying Board, which administers the examination. Application blanks may be obtained by writing AAMA's national office, 510 North Dearborn Street, Chicago, Illinois 60610. The 1965 examination will be given on the last Friday and Saturday in June at a number of locations in the United States.

Also available from AAMA headquarters is a revised study outline and suggested bibliography for the examination, which covers medical terminology, anatomy and physiology; personal adjustment and human relations; medical ethics and etiquette; medical law and economics; office skills and procedures, accounting, credits and collections; written and oral communications; records (medical and non-medical); examination room techniques, and laboratory orientation.

EDUCATION NOTICES

Meetings and Courses

COMMITTEE ON CONTINUING MEDICAL EDUCATION

THIS BULLETIN of the dates of continuing education programs and the meetings of various medical organizations in California is supplied by the Committee on Continuing Medical Education of the California Medical Association. In order that they may be listed here, please send communications relating to your future meetings or postgraduate courses to Committee on Continuing Medical Education, California Medical Association, 693 Sutter Street, San Francisco, California 94102.

KEY TO ABBREVIATIONS AND SYMBOLS

Medical Centers and CMA Contacts for Postgraduate Course Information

CMA:	California Medical Association For information regarding Postgraduate Institutes and Circuit Courses, Contact: Continuing Medical Education, California Medical Association, 693 Sutter Street, San Francisco 94102. PRospect 6-9400, Ext. 68.
LLU:	Loma Linda University For course information contact: W. F. Norwood, Ph.D., Assistant Dean and Chairman, Division of Continuing Education, Loma Linda University School of Medicine, 1720 Brooklyn Ave., Los Angeles, California 90033, ANgelus 9-7241, Ext. 214.
PRES.	Presbyterian Medical Center
MED. CTR.	For information contact: Arthur Selzer, M.D., chairman, Education Committee, Presbyterian Medical Center, Clay and Webster Streets, San Francisco 94115. WEst 1-8000.
UCLA:	University of California at Los Angeles For information on courses for physicians or ancillary personnel contact: Thomas H. Sternberg, M.D., Assistant Dean and Head, Continuing Education, U.C.L.A. Medical Center, Los Angeles, 90024, 478-9711, Ext. 2114.
UCSF:	University of California, San Francisco For information on courses for physicians or ancillary personnel, contact: Seymour M. Farber, M.D., Dean, Educational Services and Director, Continuing Education, University of California Medical Center, Room 565-U, San Francisco 94122, MOntrose 4-3600, Ext. 179.
USC:	University of Southern California For course information contact: Phil R. Manning, M.D., Associate Dean, Postgraduate Division, USC School of Medicine, 2025 Zonal Ave., Los Angeles 90033, CApital 5-1511, Ext. 300.
STAN:	Stanford University For information on courses for physicians or ancillary personnel contact: Roy Cohn, M.D., Associate Dean for Graduate Affairs, Stanford University School of Medicine, 300 Pasteur Drive, Palo Alto, DAvenport 1-1200.

*Fee to be announced.

†Hours to be announced.

JANUARY

- January 13-May 12—**Teaching Clinics in Psychiatry.** Wednesday evenings. 36 hours. \$25. UCLA.
- January 17-20—**Chemotherapy.** UCLA at Riviera Hotel, Palm Springs. Sunday-Wednesday. 12 hours. \$100.
- January 19-April 6—**Medical Radio Conferences.** Tuesdays. 12:30 to 1:30 p.m. UCSF.
- January 20—**Annual Midwinter Symposium on Heart Disease.** Statler Hilton Hotel, Los Angeles. Wednesday. Contact: Mr. Chauncey Alexander, executive director, Los Angeles County Heart Association, 2405 West 8th Street, Los Angeles 90057.
- January 21-22—**New and Old Antibiotics.** USC at Los Angeles County Hospital. Thursday-Friday. 15 hours. \$35.
- January 21-April 8—**Medical Radio Conferences.** Thursdays. 12:30 to 1:30 p.m. UCSF.
- January 22-24—**American College of Surgeons Annual Meeting of the Southern California Chapter.** Palm Springs. Sunday-Tuesday. Contact: Russell Smith, M.D., chairman, 1930 Wilshire Blvd., Los Angeles.
- January 22-24—**The Challenge to Woman: The Biologic Avalanche.** Friday-Sunday. UCSF. Fee: \$25 (or \$10. For TV viewing).†
- January 23—**Diabetes Mellitus.** Saturday. 8 hours. \$25. Pres. Med. Ctr.
- January 27-28—**The American Group Psychotherapy Association Annual Training Institute: "Formation and Conduct of Psychotherapy Groups in Various Existing Settings."** Jack Tar Hotel, San Francisco. Wednesday-Thursday. Contact: Max A. Sherman, M.D., chairman, 1022 S. La Cienega Blvd., Los Angeles 90035.
- January 27-April 14—**Practical Medical Psychotherapy.** UCSF at Langley Porter Neuropsychiatric Institute, San Francisco.*†
- January 28-30—**The American Group Psychotherapy Association Annual Scientific Conference.** Jack Tar Hotel, San Francisco. Thursday-Saturday. Contact: American Group Psychotherapy Association, Inc., 1790 Broadway, Room 516, New York 19, N.Y.
- January 29—**Nuclear Medicine.** USC at Los Angeles County Hospital. Fridays. 4:00-5:00 p.m.
- January 29-31—**Clinical Conference in Pediatric Anesthesiology.** Childrens Hospital of Los Angeles. Friday-Sunday. Contact: M. Digby Leigh, M.D., Childrens Hospital of Los Angeles, 4614 Sunset Boulevard, Los Angeles 90027.
- January 30-31—**Annual Midwinter Radiological Conference.** Biltmore Hotel, Los Angeles. Saturday-Sunday. Contact: John L. Gwinn, M.D., Children's Hospital, 4614 Sunset Boulevard, Los Angeles 90027.
- January 30-31—**Memorial Hospital Scientific Seminar Program.** Memorial Hospital of Southern California, 3828 Hughes Avenue, Culver City. Saturday-Sunday. Contact: Charles Kruse, M.D., chairman, 2200 Santa Monica Blvd., Santa Monica.

FEBRUARY

- February 1—**Medical Aspects of Well Being.** Monday. 9 hours. \$10. UCSF.
- February 1-2—**Practical Application of Neuroradiological Techniques.** Monday-Tuesday. 12 hours. \$50. UCLA.
- February 2-April 20—**Bedside Cardiology.** USC at Los Angeles County Hospital. \$80.†
- February 3-5—**Aviation Medicine Seminars.** UCSF at Del Webb's TowneHouse, San Francisco. Wednesday-Friday.*†

February 3-7—**Gastroenterology**. UCLA at Riviera Hotel, Palm Springs. Wednesday-Sunday. 16 hours. \$100.

February 6—**Annual Harold K. Faber Lecture. "Symposium on Chronic Disease of Childhood."** Main Campus, Physics Lecture Hall, Stan. Saturday. 9:00 a.m. to 5:00 p.m. No fee. Contact: Stanford Children's Convalescent Hospital, 520 Willow Road, Palo Alto.

February 6—**Current Dermatologic Therapy**. Saturday. 8 hours. \$25. Pres. Med. Ctr.

February 6-7—**Venereal Disease**. Saturday-Sunday. 12 hours. UCLA.*

February 6-March 13—**Conflicts in Sexual Adjustments**. UCSF at Herrick Memorial Hospital, Berkeley, Saturdays. 18 hours. \$10.

February 11-13—**Pediatric Ophthalmology**. Thursday-Saturday. 20 hours. \$65. UCSF.

February 11-April 1—**Bedside Clinics in Internal Medicine**. UCLA at Harbor General Hospital, Torrance. Thursday evenings. 16 hours. \$60.

February 12-14—**Geriatric Anesthesia**. UCLA at Harbor General Hospital, Torrance. Friday-Sunday. 18 hours.*

February 12-14—**Spatial Electrocardiography**. USC at El Mirador Hotel, Palm Springs. Friday-Sunday. 22 hours. \$60.

February 13-14—**Neuropsychiatry in General Practice**. UCSF at Napa State Hospital. Saturday-Sunday.*†

February 13-14—**Pediatric Surgery Symposium**. Presented by Childrens Hospital of Los Angeles. Saturday-Sunday. Contact: Newlin Hastings, M.D., program chairman, 4614 Sunset Blvd., Los Angeles 90027.

February 13-14—**The Compensable Injury; Problems of Remotivating the Patient**. USC at Arizona State Hospital, Phoenix, Arizona. Saturday-Sunday. 9:00-4:30 both days. \$15.

February 15-19—**Course for Physicians in General Practice**. UCSF at Mount Zion Hospital, San Francisco. Monday-Friday. 32 hours. \$100.

February 17-April 7—**Medical Economics**. Wednesdays. 16 hours. \$35. UCLA.

February 18-March 25—**Neuropsychiatry in General Practice**. UCSF at Napa State Hospital, Imola.*†

February 18-20—**Skin Bacteria and Their Role in Infection**. Thursday-Saturday. 15 hours. \$35. UCSF.

February 19-21—**Neurological Procedures and Principles Useful in Internal Medicine**. USC at Los Angeles County Hospital. Friday-Sunday. 22 hours. \$65.

February 20—**Concepts of Mental Health Consultation**. Saturday. 7 hours. \$25. UCLA.

February 20-21—**Pediatric Urologic Seminar**. Childrens Hospital, Los Angeles. Saturday-Sunday. Contact: H. H. Edelbrock, M.D., 6753 Hollywood Blvd., Los Angeles 90028.

February 20-22—**Selecting Children for Special Educational Services**. Saturday-Monday. 18 hours. \$15. UCSF.

February 24—**Shock Symposium**. USC at Statler Hilton Hotel, Los Angeles. Wednesday. 7 hours. \$25.

February 25-26—**Pulmonary Disease**. USC at Beverly Hilton Hotel, Beverly Hills. Thursday-Friday. 14 hours. \$45.

February 25-26—**SOUTHERN COUNTIES—Regional Postgraduate Institute presented by California Medical Association** in cooperation with Stanford University School of Medicine. "Advances in Therapeutics." Disneyland Hotel, Anaheim. Chairman: Edward Shanbrom, M.D., Orange County General Hospital, 101 South Manchester, Orange.

February 26-27—**Clinical Neurology**. Friday-Saturday. UCSF.*†

February 27—**Symposium on Immunology and Respiratory Tract Diseases**. Sponsored by Tuberculosis and Health Association of Contra Costa. Richmond. Saturday. 7 hours. Contact: Clifford L. Feiler, M.D., chairman, 949 Moraga Road, Lafayette 94549.

February 27-28—**Early Management of Acute Trauma**. Saturday-Sunday. 12 hours. UCLA.*

February 27-28—**Neuropsychiatric Management in Daily Practice**. UCSF at Modesto State Hospital, Modesto, Saturday-Sunday.*†

MARCH

March 3-4—**Annual Spring Symposium for Physicians Practicing General Medicine**. Sponsored by Los Angeles County Heart Association. Wednesday-Thursday. Place to be announced. Contact: Mr. Chauncey Alexander, executive director, Los Angeles County Heart Association, 2405 West 8th Street, Los Angeles 90057.

March 3-5—**Keratoplasty**. Lions Eye Bank, Pres. Med. Ctr. Wednesday-Friday. 24 hours. \$125. Limited to specialists.

March 3-May 19—**Doctor-Patient Communication: A Laboratory Course**. USC at Los Angeles County Hospital. Wednesdays. 24 hours. \$25.

March 3-May 19—**Introduction to Family Therapy**. USC at Los Angeles County Hospital. Wednesdays. 24 hours. \$35.

March 6-7—**Operable Heart Disease Annual Conference**. Saturday-Sunday. 16 hours. \$35. Pres. Med. Ctr.

March 6-7—**Surgical Techniques for Degenerative Hip Disease**. Saturday-Sunday. 12 hours. UCLA.*

March 7-11—**Alumni Postgraduate Convention, Loma Linda University School of Medicine**. March 7-8 (Sunday-Monday)—Refresher Courses. White Memorial Medical Center. March 9-11 (Tuesday-Thursday)—Scientific Assembly. Ambassador Hotel. Contact: Samuel H. Fritz, M.D., general chairman, 1832 East Michigan, Los Angeles 90033.

March 10-14—**Diagnostic Radiology**. Wednesday-Sunday. 26 hours. \$110. UCSF.

March 12-13—**WEST COAST COUNTIES—Regional Postgraduate Institute presented by California Medical Association** in cooperation with University of California School of Medicine, San Francisco. Del Monte Lodge, Pebble Beach. Chairman: William B. Wenner, M.D., 726 Cass Street, Monterey.

March 12-14—**Cardiology**. Friday-Sunday. 16 hours. UCLA.*

March 13—**Demonstrations in Clinical Hematology**. UCSF at Children's Hospital, San Francisco. Saturday. 6 hours. \$15.

March 13-14—**Cancer Conference**. Saturday-Sunday. 16 hours. \$25. Pres. Med. Ctr.

March 13-14—**Neuropsychiatry in Daily Practice**. UCSF at Agnews State Hospital, San Jose. Saturday-Sunday.*†

March 15-19—**Advanced Electrocardiography and Vectorcardiography**. Co-sponsored by the Daniel Freeman Hospital and the Los Angeles County Heart Association. Wednesday through Friday evenings at the Daniel Freeman Hospital, Inglewood. Registration fee: \$50. Contact: Walter S. Graf, M.D., program chairman, The Daniel Freeman Hospital, 333 N. Prairie Avenue, Inglewood.

March 17-18—**Cancer Seminar**. Sponsored by the Arizona Division of the American Cancer Society. Pioneer Hotel,

- Tucson, Wednesday-Thursday. Contact: Darwin W. Neubauer, M.D., 720 North Country Club Road, Tucson 85716.
- March 19-21—**Sex Disorders in Clinical Practice: A Program for Physicians.** Friday-Sunday, 20 hours. \$75. UCSF.
- March 20—**Treatment of Fractures.** Saturday, 8 hours. \$25. Pres. Med. Ctr.
- March 24-25—**Annual Cardiovascular Symposium for the Physician Practicing General Medicine.** Statler Hilton Hotel, Los Angeles, Wednesday-Thursday. Contact: Marvin J. Rosenberg, M.D., chairman, 4314 W. Slauson, Los Angeles 90043.
- March 27—**Progress in Pediatrics.** Saturday, 8 hours. \$25. Pres. Med. Ctr.
- March 28-31—**CALIFORNIA MEDICAL ASSOCIATION 94th Annual Session.** Scientific theme: "Virology." Fairmont Hotel, Mark Hopkins Hotel, San Francisco. Sunday-Wednesday. Contact: Mr. John Hunton, executive secretary, 693 Sutter Street, San Francisco 94102.

APRIL

- April 2-4—**American Society for the Study of Sterility.** San Francisco. Friday-Sunday. Contact: Herbert H. Thomas, M.D., executive secretary, 944 S. 18th Street, Birmingham, Alabama.
- April 2-4—**Anesthesiology, Annual Postgraduate Assembly.** Sponsored by the Anesthesia Section of the Los Angeles County Medical Association. International Hotel, Los Angeles. Friday-Sunday. \$20. Contact: Joseph L. Cadranet, M.D., secretary, 9430 Kirkside Road, Los Angeles 90035.
- April 2-4—**Proctology.** Friday-Sunday. UCSF.*†
- April 4-8—**American College of Obstetricians and Gynecologists Annual Clinical Meeting.** Civic Auditorium, San Francisco. Sunday-Thursday. Contact: Robert A. Kimbrough, M.D., director, 79 West Monroe Street, Chicago 60603.
- April 5-16—**Prosthetics-Orthotics.** Monday-Friday, 90 hours. \$200. UCLA.
- April 7-10—**Emergency Care of the Sick and Injured.** Wednesday-Saturday, 24 hours. \$20. UCLA.
- April 7-May 12—**Psychiatry for General Practice.** UCSF at Stockton State Hospital, Stockton.*†
- April 8-June 10—**Ward Walks in Rare Diseases.** USC at Los Angeles County Hospital. Thursdays, 20 hours. \$105.
- April 8-9—**Current Concepts in Obstetrics and Gynecology.** USC at Statler Hilton Hotel, Los Angeles. Thursday-Friday, 14 hours. \$45.
- April 9-15—**American Academy of General Practice.** San Francisco. Friday-Thursday. Contact: Mac F. Cahal, J.D., Volker Boulevard at Brookside, Kansas City 12, Mo.
- April 10—**Conference on Ophthalmology.** For Ophthalmologists only. Saturday all day. No fee. Pres. Med. Ctr.
- April 10-11—**Clinical Considerations in Mental Retardation.** UCSF at Sonoma State Hospital, Eldridge. Saturday-Sunday.*†
- April 10-11—**The Uncertain Quest: The Teen-Ager's World.** Saturday-Sunday. UCSF.*†
- April 22-24—**Inheritable Endocrine and Metabolic Diseases: Prevention, Detection, and Treatment.** Thursday-Saturday. UCSF.*†

- April 24-25—**Neuropsychiatry for the Non-Psychiatric Physician in General Practice.** Sutter Memorial Hospital, Sacramento. Saturday-Sunday. UCSF.*†
- April 25-30—**Pacific Coast Oto-Ophthalmological Society Annual Meeting.** Hotel Del Coronado, Coronado. Sunday-Friday. Contact: George E. Morgan, M.D., executive secretary-treasurer, 960 East Green Street, Pasadena 91101.
- April 29-May 1—**Ear, Nose, Throat.** Friday-Saturday. UCSF.*†
- April 30-May 1—**Pediatrics.** Friday-Saturday. UCSF.*†

MAY

- May 3-4—**Surgery of the Head and Neck.** Monday-Tuesday, 12 hours. UCLA.*
- May 6-7—**Diseases of the Larynx.** Thursday-Friday, 12 hours. UCLA.*
- May 12-14—**Highlights of Modern Ophthalmology.** For Ophthalmologists only. Wednesday-Friday. \$75. Pres. Med. Ctr.
- May 13-16—**The Arterial Tree.** Thursday-Sunday, 24 hours. UCLA.*
- May 21-23—**Laboratory Diagnosis.** Friday-Sunday, 18 hours. UCLA.*
- May 27-28—**SAN JOAQUIN COUNTIES—Regional Postgraduate Institute presented by California Medical Association** in cooperation with USC School of Medicine. Ahwahnee Hotel, Yosemite. Chairman: Howard Corbus, M.D., 1300 North Fresno, Fresno.
- May 29-June 30—**Fourth Annual Medical Centers of Europe.** \$250. USC.
- May 31-June 11—**Prosthetics-Orthotics.** Monday-Friday, 90 hours. \$200. UCLA.

JUNE

- June 23-25—**Treatment of Fractures.** USC at Los Angeles County Hospital. Wednesday-Friday, 22 hours. \$80.
- June 24-26—**SACRAMENTO VALLEY COUNTIES—Regional Postgraduate Institute presented by California Medical Association** in cooperation with UCLA School of Medicine. Harvey's Resort Hotel, Lake Tahoe. Co-Chairmen: Dixon L. Hughes, M.D., 3320 White Oak Court, Sacramento; Philip J. Reilly, M.D., 6437 Fair Oaks Boulevard, Carmichael.

JULY

- July 16-17—**NORTH COAST COUNTIES—Regional Postgraduate Institute presented by California Medical Association** in cooperation with Loma Linda University School of Medicine. Eureka Inn, Eureka. Chairman: J. Roy Wittwer, M.D., 716 Harris Street, Eureka.
- July 29-30—**Recent Trends in Strabismus Management and Treatment.** For physicians in Ophthalmology or EENT only. Thursday-Friday. \$60. Pres. Med. Ctr.

Courses Offered Continuously or by Arrangement

LLU:

- As Arranged—**Traineeships** in clinical and other departments are available by arrangement with department chairmen of the Postgraduate Division, 80 hours minimum.
- Anesthesia,** 6 months, 250-300 hours. \$350.
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for treatment of emotional factors in cardiovascular disease

BRIEF SUMMARY

Indications: Anxiety and tension states. Also as adjunctive therapy when anxiety may be a causative or disturbing factor.

Contraindications: Previous allergic or idiosyncratic reactions to meprobamate.

Important precautions: Should administration of meprobamate cause drowsiness or visual disturbances, the dose should be reduced. Operation of motor vehicles or machinery or other activity requiring alertness should be avoided if these symptoms are present. Effects of excessive alcohol may possibly be increased by meprobamate. Prescribe cautiously and in small quantities to patients with suicidal tendencies. Consider possibility of dependence, particularly in patients with history of drug or alcohol addiction; withdraw gradually after prolonged use at high dosage. Abrupt withdrawal may precipitate recurrence of pre-existing symptoms, or withdrawal reactions including, rarely, epileptiform seizures. Grand mal seizures may be precipitated in persons suffering from both grand and petit mal.

Side effects: Drowsiness may occur and, rarely, ataxia, usually controlled by decreasing the dose. Allergic or idiosyncratic reactions are rare, generally developing after one to four doses of the drug. Mild reactions are characterized by an urticarial or erythematous, maculopapular rash. Acute nonthrombocytopenic purpura with peripheral edema and fever, transient leukopenia, and a single case of fatal bullous dermatitis after administration of meprobamate and prednisolone have been reported. More severe and very rare cases of hypersensitivity may produce fever, chills, fainting spells, angioneurotic edema, bronchial spasm, hypotensive crises (1 fatal case), anuria, stomatitis, proctitis, and anaphylaxis. Treatment should be symptomatic and the drug not reinstituted. Isolated cases of agranulocytosis and thrombocytopenic purpura, and a single fatal instance of aplastic anemia have been reported, but only when other drugs known to elicit these conditions were given concomitantly. Fast EEG activity has been reported, usually after excessive meprobamate dosage. Massive overdosage may produce lethargy, stupor, ataxia, coma, shock, vasomotor and respiratory collapse.

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Air Pollutants Implicated In Asthma Outbreaks

Two air pollutants have been implicated so far in a continuing study of what causes epidemic episodes of asthma in New Orleans.

It is probable that other sources of atmospheric pollution are also casually related to the outbreaks. Hans Weill, M.D., Morton M. Ziskind, M.D., and Vincent J. Derbes, M.D., Tulane University, and Richard C. Dickerson, U.S. Public Health Service, reported in the November 30 *Journal of the American Medical Association*.

A poor combustion product containing silica from the smoke of an abandoned city dump burning underground was the first pollutant linked to the asthmatic outbreaks, according to the *Journal* article. It was found to be present in increased concentrations when peaks in asthma attacks occurred.

Skin tests using smoke extracts produced "a very high incidence" (83 per cent) of positive reactions among victims of previous outbreaks, the researchers said.

The dump is located in the northeast section of New Orleans, one of two regions of the city pinpointed as probable emanating points of air pollution in an earlier study completed in 1962. The other section was the southwest.

The outbreaks are associated with low velocity winds usually from the south and southwest although sometimes from the north and northeast.

Subsequent investigations using extracts from air sampling stations in scattered parts of the city showed a significantly higher percentage of positive responses from samples taken from the southwestern part of the city than those of other stations.

Preliminary studies using extracts from a public grain elevator located within one mile of the air sampling station revealed that 86 per cent of 77 patients involved in previous asthma outbreaks had positive skin tests, the researchers reported.

Further studies of the grain extract are under way, including biochemical separation and identification of materials it contains.

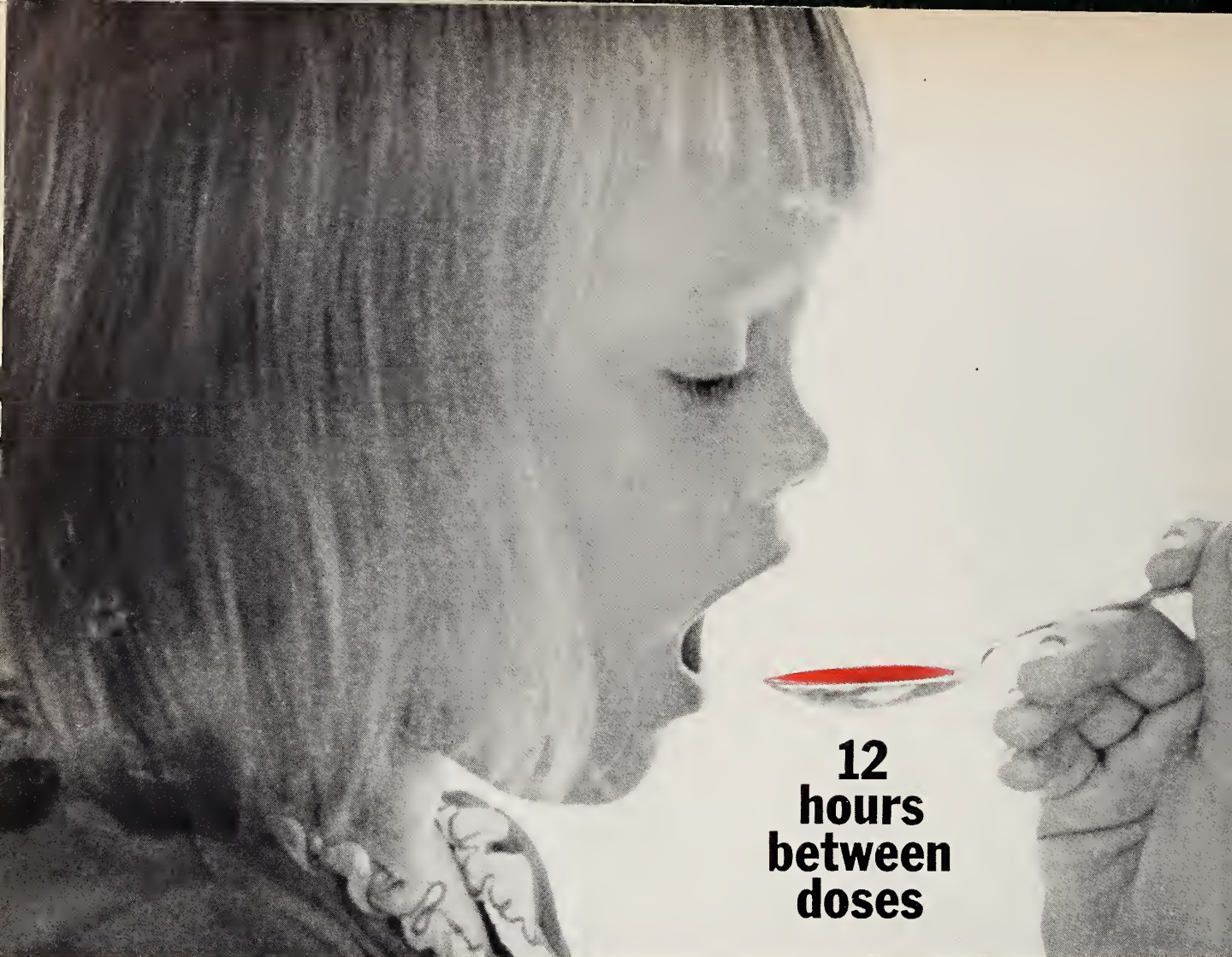
However, the authors said, other emission sources in the southwestern part of the city need to be examined and the relative contribution of each to asthma outbreaks to be determined.

An association of bronchial asthma and exposure to grain products has been appreciated for many years, it was pointed out.

Recently, periodic increases in asthmatic attacks among University of Minnesota students led investigators to study the relationship between the many grain industry installations surrounding the university campus and local increases in asthma, the researchers said. An exchange of grain extracts is under way between New Orleans and Minneapolis for skin testing the respective asthmatic groups.

Since the early 1950's there have been periodic

(Continued on Page 58)



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(Continued on Page 60)

Air Pollutants Implicated. In Asthma Outbreaks

(Continued from Page 51)

increases in the number of asthmatics seen in the emergency room of Charity Hospital in New Orleans, according to the report. The average number seen in a 24-hour period varies from 20 to 25, but during an outbreak, as many as 200 visits per day have been recorded.

The outbreaks are seen most often in October and November but also occur during June and July.

In 1958, an outbreak associated with several deaths came to the attention of the Division of Air

Pollution of the Public Health Service. This led to a contract with Tulane in 1959 for an investigation of the epidemics and their possible relation to environmental factors, particularly air pollutants.

An analysis of 175 victims of the outbreaks showed that 99 per cent had a history of allergy or reacted to standard allergen skin tests. The mean age of this group was 38, and 62 per cent were women.

Self-Medication Discouraged For Childbearing Age Group

Self-medication by women in the childbearing age group should be "strongly discouraged" because of the possibility of birth defects, an article in the November 30 *Journal of the American Medical Association* has stated.

The greatest danger of inducing malformations is in the first three months of pregnancy. Dr. Virginia Apgar, The National Foundation, New York City, wrote in a report prepared at the request of the AMA Council on Drugs.

"Since this includes the period before a woman may be aware that she is pregnant, and since we know very little about the effects of drugs on the fetus, physicians are urged to exercise great restraint in prescribing medications for women of childbearing age, and self-medication by patients in this group should be strongly discouraged," she said.

The article included a table listing some relationships which have been observed between maternal medication and changes in the embryo or newborn infant. However, it was pointed out, only a few of these relationships have been proved "beyond a shadow of doubt."

"Very little is known that can actually be applied to all pregnancies," Dr. Apgar said.

At the same time, she said, there is no count of babies who have survived because of drugs administered during pregnancy, infants who escaped birth defects because their mothers were given certain drugs, or full-term babies who might have been born prematurely without drugs.

Eighty per cent of mothers who took thalidomide during the period of fetal sensitivity had normal infants, Dr. Apgar added.

"What was it in the genetic background of the mother or the father that caused the serious anomalies that occurred in 20 per cent of the infants? What environmental associations were related?"

The answers, she said, "are a long way off."

ACUTE WATER INTOXICATION FROM COMPULSIVE WATER DRINKING—T. H. Bewley (Tooting Bec Hosp., London). *Brit. Med. J.*, 2:864 (Oct. 3) 1964.

Two cases of acute water intoxication leading to coma are described in compulsive water drinkers. Both patients were women who were addicts, and the excessive water drinking immediately followed the period of drug withdrawal.

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for treatment of anxiety and tension in geriatric patients

BRIEF SUMMARY

Indications: Anxiety and tension states. Also as adjunctive therapy when anxiety may be a causative or disturbing factor.

Contraindications: Previous allergic or idiosyncratic reactions to meprobamate.

Important precautions: Should administration of meprobamate cause drowsiness or visual disturbances, the dose should be reduced. Operation of motor vehicles or machinery or other activity requiring alertness should be avoided if these symptoms are present. Effects of excessive alcohol may possibly be increased by meprobamate. Prescribe cautiously and in small quantities to patients with suicidal tendencies. Consider possibility of dependence, particularly in patients with history of drug or alcohol addiction; withdraw gradually after prolonged use at high dosage. Abrupt withdrawal may precipitate recurrence of pre-existing symptoms, or withdrawal reactions including, rarely, epileptiform seizures. Grand mal seizures may be precipitated in persons suffering from both grand and petit mal.

Side effects: Drowsiness may occur and, rarely, ataxia, usually controlled by decreasing the dose. Allergic or idiosyncratic reactions are rare, generally developing after one to four doses of the drug. Mild reactions are characterized by an urticarial or erythematous, maculopapular rash. Acute nonthrombocytopenic purpura with peripheral edema and fever, transient leukopenia, and a single case of fatal bullous dermatitis after administration of meprobamate and prednisolone have been reported. More severe and very rare cases of hypersensitivity may produce fever, chills, fainting spells, angioneurotic edema, bronchial spasm, hypotensive crises (1 fatal case), anuria, stomatitis, proctitis, and anaphylaxis. Treatment should be symptomatic and the drug not reinstituted. Isolated cases of agranulocytosis and thrombocytopenic purpura, and a single fatal instance of aplastic anemia have been reported, but only when other drugs known to elicit these conditions were given concomitantly. Fast EEG activity has been reported, usually after excessive meprobamate dosage. Massive overdosage may produce lethargy, stupor, ataxia, coma, shock, vasomotor and respiratory collapse.

Usual adult dosage: One or two 400 mg. tablets three times daily. Doses above 2400 mg. daily are not recommended.

Supplied: 400 mg. scored tablets; 200 mg. coated tablets.

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CM-4108

Information Lacking About Neck Breathers

A lack of information among management personnel is hindering reemployment of neck breathers, persons whose larynx or voice box has been removed, usually because of cancer.

Following surgery, an opening is left in the patient's neck below the Adam's apple for breathing.

"Lack of information about the laryngectomee's speech ability, health, and working capacity, shapes employers' policies that are not consistent for similar job situations, and often do not permit suitable reemployment and a chance for the patient to recoup hospital and surgical expenses and to retire in comfort," Warren H. Gardner, Ph.D., Cleveland, said in the December *Archives of Environmental Health*, published by the American Medical Association.

"If the neck breather is just as efficient after operation as he was before (and this can only be learned by trial); if his health is not endangered; and if he is not a potential hazard to himself and his fellow employees, this loyal employee, representing expensively trained manpower, should be returned to his position or be given equivalent employment."

A survey of 115 laryngectomees in the Cleveland area showed that 28 per cent changed or lost their jobs postoperatively. All who changed jobs got less pay than they received before their operation. Sixty-seven per cent of the 32 persons who returned to their old job received a reduction in pay.

About 4,000 persons undergo laryngectomy each year in the United States, Dr. Gardner said, and there are more than 15,000 laryngectomees in this country. These patients are surviving because of the use of antibiotics, improved surgical techniques and nursing care, he said, and the number in industry has shown a great increase in the last 10 years.

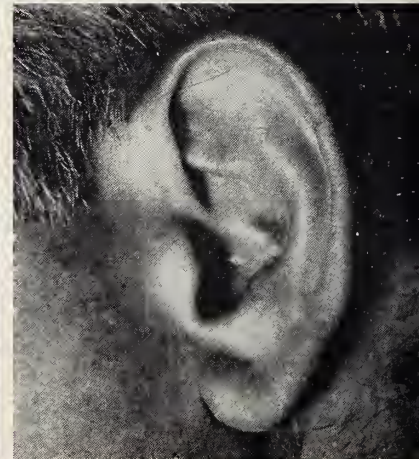
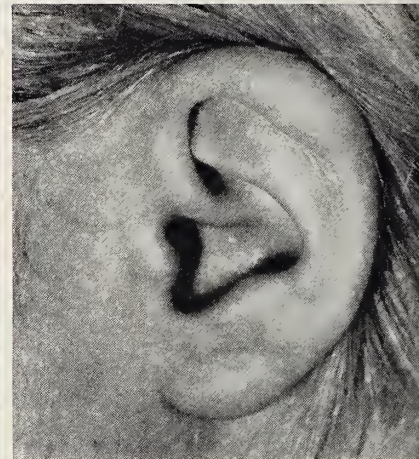
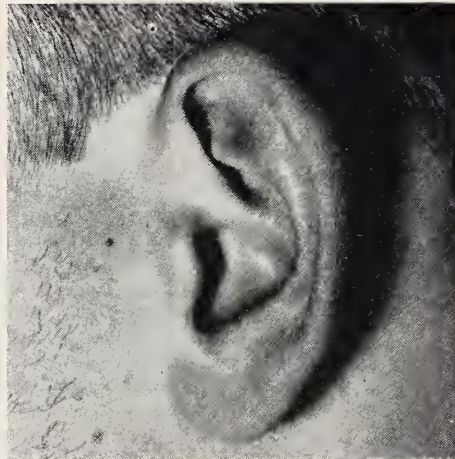
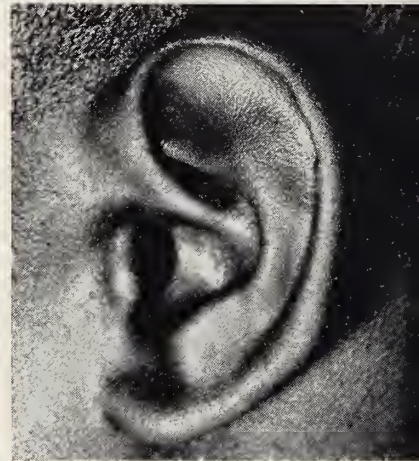
Although removal of the larynx deprives the patient of the sound producing part of his speech apparatus, the other parts—the pharynx, hard and soft palate, tongue, lips, and teeth—usually remain intact, Dr. Gardner explained. The patient generally can be taught to produce speech by swallowing air taken in through the mouth, then forcing the compressed air back into the mouth to form sounds. An artificial larynx also enables the patients to speak.

Neck breathers work in a variety of industries in which they inhale particulates, mists, and vapors, Dr. Gardner continued. Several protective masks are used, he said, but none provides complete protection of the lungs from particles and gases. He urged employers to establish controls and equipment to protect the lungs of these workers and called on safety engineers to design a mask that will safely guard neck breathers from industrial airborne particles.

Dr. Gardner is emeritus consultant, department of otolaryngology, The Cleveland Clinic Foundation, and is also the founder of The International Association of Laryngectomees, New York City.



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*Jenkins, B. H.: J.A.M.A., 175:402, 1961.

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WARNER-CHILCOTT Morris Plains, N. J.

Research Upsurge Seen In Animal Diseases

The study of naturally occurring animal diseases promises to help clarify some important but poorly understood human ailments, according to Robert W. Leader, DVM, Pullman, Wash.

When an artificially produced disease does not otherwise occur in an experimental animal, he pointed out, all subsequent manipulations are built upon situations which do not exist in nature.

In the past decade there has been a great surge of activity in comparative pathology at colleges of veterinary medicine and other research institutes,

Dr. Leader, professor, department of veterinary pathology, College of Veterinary Medicine, Washington State University, said.

He pointed out that only a partial list of active basic research projects indicates many species and diseases are under investigation, including leukemia of cats, dogs, cattle, and poultry; viral anemia, pulmonary emphysema, and viral arteritis of horses; arthritis and gastric ulcers of swine; muscular dystrophy, high altitude disease, and dwarfism of cattle, virus hepatitis of dogs, and sickle-cell anemia of deer.

Writing in the October *Archives of Pathology*, published by the American Medical Association, Dr. Leader said recently researchers have found in swine deposits of fatty material and changes closely resembling hardening of the arteries in man.

"It appears, after many years of struggling with artificially produced atherosclerosis, that workers may have discovered a naturally occurring model in the pig, an animal of approximately the same body size as man," he commented.

"The pig has omnivorous habits, and with careful experimental design, environmental variables similar to those experienced by the human population could be simulated.

"All this information should have been available many years ago; but because the life of most swine is terminated at a young age, a special effort was necessary to collect specimens from mature animals before the obvious could be seen."

New miniature swine, which are easier to handle and consume far less food, may constitute an excellent experimental animal, he added.

Another naturally occurring animal disease, Aleutian disease of mink, may provide greater knowledge of connective tissue disease, such as rheumatoid arthritis, Dr. Leader continued. This disease in mink is triggered by a filterable agent and there is evidence that this may be a virus although final proof awaits further experimentation, he said.

It has been postulated that rheumatoid arthritis, which has some similarities to Aleutian disease, fits most logically in the virus disease group, according to Dr. Leader. The discovery of a somewhat similar disease of lower animals which provisionally can be attributed to a virus presents an "experiment in nature" of great significance, he said.

The Aleutian mink, which originated as a mutation in Oregon in 1941, may also prove valuable in another way, Dr. Leader added. Close observation has shown that the characteristics of these mink closely resemble children with Chediak-Higashi syndrome, which is inherited by means of a recessive gene, is marked by abnormal white blood cells, visual defects and partial albinism. Affected children are highly susceptible to bacterial infections and most die before the age of seven.

Studies with children have been of limited value

(Continued on Page 17)

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Research Upsurge Seen In Animal Diseases

(Continued from Page 16)

because there are so few with the syndrome. Dr. Leader commented. But these mink, bred and nurtured for their fur, are in essence "walking experimental laboratories" capable of helping to elucidate this syndrome, he said.

Urge Sales Limit on Morning Glory Seeds

A plea was made today for controlling the sale of morning glory seeds which when consumed can produce a psychic reaction similar to LSD.

LSD, the abbreviation for d-lysergic acid diethylamide, is a potent drug capable of causing hallucinations.

The ingestion of morning glory seeds has increased in the past months and at least one suicide has resulted, Dr. Albert L. Ingram Jr., Ritenour Health Center, Pennsylvania State University, University Park, Pa., wrote in the December 28 *Journal of the American Medical Association*.

"The increased use of the seeds has perhaps been more notable on the college and university campus where a greater degree of self-experimentation is usually found in the adolescent and young adult," Dr. Ingram said.

"This poses a potential danger of some magnitude. As with LSD, latent psychoses can be activated and the neurotic can become physically addicted."

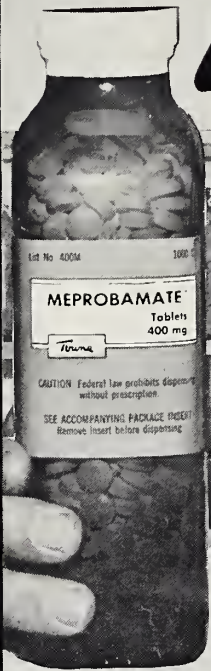
Dr. Ingram urged that "controls be contrived that would prohibit or limit the sale of the morning glory seed until more scientific evidence is available."

Ironically, he added, "it was the recent questionable use of LSD experimentally which led to tightening of controls which in turn probably encouraged the use of the readily available morning glory as a substitute."

For centuries men have sought new experiences by deliberate ingestion of substances having mind-altering properties, Dr. Ingram pointed out. The early discovery of herbs or plants with the ability to alter perceptions or states of consciousness was entirely accidental and the search for such substances was purely on a trial and error basis. It was soon learned that vegetable alkaloids contained in such plants were responsible for the psychic phenomena.

The first isolation of mind-altering substances from the seed of the tropical morning glory apparently was made in 1960, according to the *Journal* report.

The mental and physical effects of the morning glory seed also seem to reside in the alkaloids it contains. The LSD-like reaction is most likely due to LSD-like alkaloids. Lysergic acids have been found in the seed but no pure LSD has yet been isolated.



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BOOKS RECEIVED

Books received by CALIFORNIA MEDICINE are acknowledged in this column. Selections will be made for more extensive review in the interest of readers as space permits.

AGING OF THE LUNG: PERSPECTIVES—The Tenth Hahnemann Symposium—Leon Cander, M.D., Associate Professor of Medicine and Head, Section of Pulmonary Diseases, Hahnemann Medical College and Hospital, Philadelphia, Pa., Editor; and John H. Moyer, M.D., Professor and Chairman, Department of Medicine, Hahnemann Medical College and Hospital, Philadelphia, Pa., Associate Editor. Grune & Stratton, Inc., New York and London, 1964. 371 pages, \$15.75.

ATLAS OF PULMONARY RESECTIONS—Buford H. Burch, M.A., M.D., F.A.C.S., Chief of Thoracic Surgery, Chest Center, Patton State Hospital, Patton, California; Assistant Clinical Professor, Division of Surgery, Loma Linda University, Loma Linda, Calif.; and Arthur C. Miller, M.S., M.D., F.A.C.S., Thoracic Surgeon, Veterans Administration Hospital, Roseburg, Oregon; Assistant Professor, Division of Surgery, Loma Linda University, Loma Linda, Calif. Charles C Thomas, Publisher, Springfield, Ill., 1964. 162 pages, \$12.50.

BLOOD COAGULATION, HEMORRHAGE AND THROMBOSIS—Methods of Study—Leandro M. Tocantins, M.D., and Louis A. Kazal, Ph.D. Grune & Stratton, Inc., New York and London, 1964. 532 pages, \$17.50.

CLINICAL ENDOCRINOLOGY AND ITS PHYSIOLOGIC BASIS—Arthur Grollman, Ph.D., M.D., F.A.C.P., Professor and Chairman of the Department of Experimental Medicine, The University of Texas Southwestern Medical School; Attending Physician, The Parkland Memorial Hospital. J. B. Lippincott Company, Philadelphia and Montreal, 1964. 442 pages, \$18.50.

CONSULTATION WITH YOUR DOCTOR FOR PERSONAL UNDERSTANDING OF MARRIAGE—Jean J. Rutherford, B.A., Family Counselor, and Robert N. Rutherford, M.D., Assistant Clinical Professor Obstetrics and Gynecology, University of Washington School of Medicine. Budlong Press Company, 5428 N. Virginia Avenue, Chicago, Ill., 1964. 92 pages, \$1.50 (Paperback; available only through professional sources).

DISASTER HANDBOOK—Solomon Garb, M.D., Associate Professor of Pharmacology, School of Medicine, University of Missouri, and Evelyn Eng, R.N., M.A., Director of Nursing Service, University Hospital, Columbia, Missouri. Springer Publishing Company, Inc., New York, 1964. 248 pages, \$4.75. (Also available in flexible cover at \$3.50.)

HANDBOOK OF PHARMACOLOGY—The Actions and Uses of Drugs—Second Edition—Windsor C. Cutting, M.D., Director, Pacific Biomedical Research Center, and Professor of Pharmacology, University of Hawaii; Editor, Annual Review of Pharmacology; Chairman, USAN Council; formerly, Professor of Experimental Therapeutics, Stanford University School of Medicine. Appleton-Century-Crofts, Division of Meredith Publishing Company, New York, 1964. 647 pages, \$5.95 (Paperback).

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NEW BOOK

PHYSICIAN'S HANDBOOK by Marcus A. Krupp, M.D., et al. 13th ed. 558 pages. 1964. Lange. \$4.50.

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INDUSTRIAL AND TRAUMATIC OPHTHALMOLOGY—Symposium of the New Orleans Academy of Ophthalmology—Arthur H. Keeney, M.D., Hedwig S. Kuhn, M.D., Roderick Macdonald, Jr., M.D., Frank W. Newell, M.D., Joseph F. Novak, M.D., Ralph W. Ryan, M.D., and Lorenz E. Zimmerman, M.D. The C. V. Mosby Company, St. Louis, 1964. 321 pages, \$14.50.

LYMPHATICS OF THE FEMALE GENITAL ORGANS, THE—Dr. Gunther Reiffenstahl, First Head Physician, University Clinic, Obstetrics & Gynecology, Graz, Austria. Translated by Leslie D. Ekvall, Jr., M.D., Diplomate, American Board of Obstetrics & Gynecology, Anchorage Medical & Surgical Clinic, Anchorage, Alaska. J. B. Lippincott Company, Philadelphia and Montreal, 1964. 165 pages, \$10.00.

MASK OF SANITY, THE—Fourth Edition—Hervey Cleckley, M.D., Clinical Professor of Psychiatry, Medical College of Georgia, Augusta, Ga.; author of *The Caricature of Love and of The Three Faces of Eve* (with Corbett H. Thigpen). The C. V. Mosby Company, Saint Louis, 1964. 510 pages, \$9.75.

MEDICAL DEPARTMENT, UNITED STATES ARMY—Blood Program in World War II—Prepared and published under the direction of Lieutenant General Leonard D. Heaton, The Surgeon General, United States Army. Colonel John Boyd Coates, Jr., MC, USA, Editor in Chief; Elizabeth M. McFetridge, M.A., Associate Editor. Office of The Surgeon General, Department of the Army, Washington, D.C., 1964. For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. 922 pages. (No price given.)

MODERN TREATMENT—Volume 1, Number 6, November 1964—Treatment of Headache, Arnold P. Friedman, M.D., Guest Editor; and Treatment of Acid Peptic Disease, Howard M. Spiro, M.D., Guest Editor. Published bimonthly by Hoeber Medical Division, Harper & Row, Publishers, New York, N.Y., 1964. Subscription: \$16.00 per year. (Laminated paperback.)

ONLY DIET THAT WORKS, THE—Herbert Brean. William Morrow and Company, Inc., New York, 1965. 112 pages, \$4.50.

PAIN IN THE CHEST—William H. Wehrmacher, M.D., F.A.C.P., F.A.C.C., Northwestern University Medical School; Passavant Memorial Hospital; U.S. Veterans Administration Research Hospital, Chicago, Illinois. Charles C Thomas, Publisher, Springfield, Ill., 1964. 403 pages, \$14.00.

PANCREATIC INFLAMMATORY DISEASE—A Physiologic Approach—David A. Dreiling, M.D., Chief of Surgery, Elmhurst Affiliate, Mt. Sinai Hospital; Director of Experimental Gastrointestinal Surgery and Director of Animal Research Facility, Mt. Sinai Hospital; Henry D. Janowitz, M.D., Head, Division of Gastroenterology, Department of Medicine, and Attending Physician for Gastroenterology, Mt. Sinai Hospital; and Claude V. Perrier, M.D., Chef de clinique adjoint, Clinique Universitaire de Thérapeutique, Geneva, Switzerland; Fellow, Swiss Academy of Medical Sciences; formerly Fellow in Gastroenterology, Mt. Sinai Hospital, New York City. Hoeber Medical Division, Harper & Row, Publishers, New York, 1964. 238 pages, \$10.50.

PEDIATRIC PROCEDURES—Walter T. Hughes, Jr., M.D., Assistant Professor of Pediatrics, University of Louisville School of Medicine, Louisville, Kentucky. W. B. Saunders Company, Philadelphia and London, 1964. 208 pages, \$7.50.

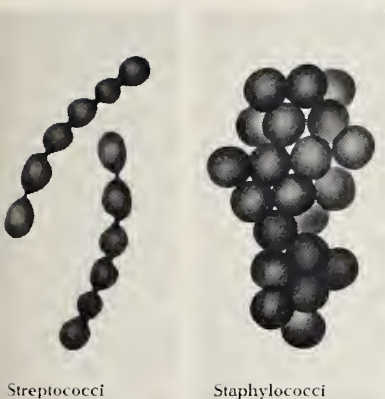
POLYPOID LESIONS OF THE GASTROINTESTINAL TRACT—Claude E. Welch, M.D., Visiting Surgeon, Massachusetts General Hospital, Boston, Clinical Professor of Surgery, Harvard Medical School, Boston; and Volume II in the Series—Major Problems in Clinical Surgery—J. Englebert Dunphy, M.D., Consulting Editor. W. B. Saunders Company, Philadelphia and London, 1964. 148 pages, \$7.50.

POSITIONING IN RADIOGRAPHY—Eighth Edition—K. C. Clark, M.B.E. Grune & Stratton, Inc., New York and London, 1964. 806 pages, \$35.00.

PRINCIPLES OF CLINICAL PSYCHOLOGY—Luciano L'Abate, Emory University School of Medicine. Grune & Stratton, New York, 1964. 317 pages, \$8.75.

PROGRESS IN CLINICAL PSYCHOLOGY—Volume VI—Edited by Lawrence Edwin Abt, Ph.D., and Bernard F. Riess, Ph.D. Editorial Board: Henry P. David, Ph.D.;

(Continued on Page 62)



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Intestinal Changes Found in Acute Viral Hepatitis

A biopsy study has revealed varying degrees of change in the small intestine during the acute phase of viral hepatitis.

The study provides additional proof of an intestinal phase of hepatitis and indicates that the intestinal damage most likely accounts for many of the symptoms of the early phase of this disease, according to a report in the December 21 *Journal of the American Medical Association*.

Authors of the report were Drs. Thomas W. Sheehy and Malcolm S. Arstenstein, Walter Reed Army Institute of Research, Washington, D.C., and Robert W. Green, department of medicine, Walston Army Hospital, Fort Dix, N.J.

Biopsies were performed on six patients with hepatitis and six patients with infectious mononucleosis associated with jaundice.

The intestinal changes, found in all hepatitis patients, amounted to partial wasting away of the villi, the microscopic finger-like projections which carpet the interior of the small intestine. The cells which cover the villi permit the absorption of water and the final products of digestion into the vessels that carry away the blood and lymph.

In contrast, the small intestine was normal in all the patients with mononucleosis except for the pres-

(Continued on Page 38)

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A REVIEW

Practical Aspects of
GENETICS
for Physicians

ROBERT S. SPARKES, M.D., *Los Angeles*

THE INCREASING NUMBER of articles concerned with medical genetics attests the growing significance of this subject to medicine. Many of the recent advances in genetic knowledge can be applied to the practice of medicine. In this brief review it has been necessary to be selective in the choice of material covered; emphasis has been placed on those aspects which will help practicing physicians toward a better understanding of the role of genetics in relation to disease.

After a discussion of basic concepts, the following topics will be considered: types of inheritance; population genetics; cytogenetics; dermatoglyphics; pharmacogenetics; heterozygote detection; genetics as an aid in diagnosis; immunogenetics; mental diseases; genetics and radiation; treatment and management of genetic diseases; genetic counseling; consanguinity; and sources of genetic counseling in California.

From the Division of Medical Genetics, Department of Medicine, School of Medicine, The Center for the Health Sciences, University of California, Los Angeles, California 90024.

Submitted December 18, 1964.

Basic Concepts^{33,34}

Heredity and Environment. An important problem in medical genetics is to define the role and importance of heredity in a disease. A useful model for visualizing this relationship is to consider disease as the result of interaction between environmental and host factors. Host factors are to a large degree genetically determined or influenced. Therefore, variability in individual responses to the same environmental stress may be attributed to hereditary factors. The genetic constitution of an individual plays some role in all diseases, since it determines the potential or limits of the body's ability to respond to environmental factors. For example, in a traumatic fracture, the inherent make-up of the individual influences the bone structure so that it may break under stress. Thus, the genetic constitution is a necessary, but frequently not a sufficient cause for a disease to occur.

Much of current genetic knowledge of normal people has come from the study of single gene-

determined diseases. These diseases offer specific, and well-defined variations from the normal, and as such offer good material for the study of inherited variations.

The Gene: Definition in biochemical and Mendelian terms. Genes are considered to be the basic units of heredity: one gene controls the formation of one polypeptide chain with structural or enzymatic functions. The information necessary to specify the sequence of amino acids in the polypeptide chain is contained in the nucleotides of the deoxyribonucleic acid (DNA) within the cell nucleus. This information is transmitted from the nucleus by a special type of ribonucleic acid (RNA) to the cytoplasm where the specific polypeptide chains are formed.

There are two types of cell division. *Meiosis* describes division which occurs only in the germ cells. The mature sperm or egg is *haploid*, containing 23 or only half the usual number of chromosomes as compared with the *diploid* number of 46 found in other cells of the human body. In the non-germ or somatic cells, cell division occurs through *mitosis*, in which the daughter cells have the same number of chromosomes as the mother cells and an identical genetic composition.

Almost one hundred years ago Mendel first noted that inherited characteristics seem to function as discrete units, and retain their individuality from generation to generation. This concept of genetic transmission and *segregation* has been succinctly stated by Ford⁶: "The genes are present in pairs (*allelomorphs*) as are the chromosomes (*homologous chromosomes*). The members of these pairs, both of genes and of chromosomes, are derived respectively from the two parents. Consequent upon Mendelian *segregation*, the genes constituting the *allelomorphs* separate from one another and pass into different gametes, as do the members of the homologous pairs of chromosomes, owing to *meiosis*. The gametes then contain one member only of the pairs, both of genes and chromosomes; but these are restored by the additive nature of fertilization." Mendel also described the *law of independent assortment*. When two or more pairs of genes segregate during meiotic cell division, distribution of any one of them is independent of the distribution of the others, unless the pairs are linked—that is, located on the same chromosome.

Structural and Regulatory Genes. Recent work in microorganisms suggests that there are two types of genes. One is a *structural gene* which determines the amino acid sequence of a polypeptide chain and the other which determines the time that a structural gene will form its product.²² This latter has been referred to as a *regulatory gene* and although

definite proof for its existence in man is incomplete, thalassemia is a possible example. In this hereditary blood disorder the production of normal polypeptide chains in part of the hemoglobin molecule is reduced. This is in contrast to other hemoglobinopathic conditions, such as sickle cell disease, in which an abnormal polypeptide chain is formed.

Mutations. A mutation is a change in the genetic material which is transmitted to future generations of cells and in which the mutant gene forms a product different from normal. Gene mutations can occur in either the somatic or the germ cells. Those in somatic cells are not transmitted to children; germ cell mutants can be transmitted to children. It is generally believed that the majority of mutations are detrimental, as might be expected, since a random change or mutation in a well-ordered and balanced mechanism is more likely to be harmful than beneficial. The effect of radiation on mutation will be discussed later.

Penetrance and Expressivity. Variation in the manifestations of a given gene in different individuals is recognized. Two terms frequently used in describing this phenomenon are *expressivity* and *penetrance*. Although often used interchangeably, they have different genetic meanings. *Expressivity* refers to the differences in degree or severity of manifestations, and *penetrance* is a statistical term referring to manifestation rate; for example, if 100 people carry a gene and 50 people show manifestations of it, there is 50 per cent penetrance.

Other Genetic Terms. *Genotype* refers to the genetic composition of an individual. *Phenotype* refers to the manifestations of a gene ranging from the initial gene product to the gross anatomical anomalies seen in some clinical diseases. A *phenocopy* is an environmentally determined phenotype similar to a genetically induced phenotype, whereas, *gencopy* refers to a phenotype produced by a gene different from the gene usually determining the phenotype.

A pair of genes (*allelomorphs* or *alleles*) on a pair of homologous chromosomes determine a specific hereditary trait. If the *allelic* genes are different, the individual is *heterozygous*; if they are the same, he is *homozygous*.

Types of Inheritance^{6,33}

Autosomal dominant, autosomal recessive, and sex-linked are terms which refer to the patterns of transmission and the manifestations of the genes, and not to the genes themselves. Table 1 lists the characteristics of these patterns of inheritance.

In man there are 23 pairs of chromosomes; 22 pairs are autosomes and the remaining pair are the sex chromosomes. The female has two x chromo-

somes: the male has one X and one Y chromosome. A large number of genes on the X chromosome have been identified, but the Y chromosome appears to be relatively deficient in genes, its importance seemingly related to the formation of testes.

The *Lyon hypothesis* has been advanced to explain the activity of genes on the X chromosome.¹⁶ The main clinical importance of this theory is that it accounts for manifestations of sex-linked traits in some female carriers. A *sex chromatin body* (*Barr body*) is found in the nucleus of somatic cells of the normal female with two X chromosomes, but is absent in the male with one X chromosome. The Lyon hypothesis proposes: (1) the sex chromatin body represents an X chromosome which is genetically inactive; (2) the inactivation of the X chromosome occurs early in the life of the embryo; (3) either X chromosome from the mother or from the father can be inactivated in a random fashion; and (4) all cells derived from a cell with a given inactivated X chromosome will have the same X chromosome inactivated. Some expected and observed consequences of this hypothesis are: (1) a normal female is a mosaic in whom some cells have one X chromosome active and the other cells have the other X chromosome active; (2) females as a group should show wide variability for traits controlled by genes on the X chromosome, so that some female carriers may actually manifest a sex-linked trait, such as muscular dystrophy or hemophilia; and (3) female identical twins should show greater intrapair differences than identical male twins.

This section on inheritance patterns will be completed with a few words about the family pedigree, which is a short-hand way of recording the family history.^{3,33} Once the system and symbols become familiar, this method offers advantages over the usual verbal description of the family history. It is much easier to recognize inheritance patterns, to see at a glance the relation of the various family members to one another, and in general to make a more useful and meaningful record.

Population Genetics³³

In addition to the study of gene manifestations in individuals and inheritance patterns in families, geneticists are interested in the frequency of genes in a population and how these may contribute to its characteristics. The basic principle dealing with population genetics is known as the Hardy-Weinberg law, which serves to illustrate how gene distributions can be estimated in a population. For illustration, it will be assumed that "A" and "a" represent two allelic genes. Since allelic genes occur in pairs the following pairs are possible: AA, Aa, and aa. The problem is to determine their relative

frequencies. The law can be condensed into a binomial formula: $p^2 + 2pq + q^2 = 1$, and $p + q = 1$; by letting the frequency of gene "A" = p and that of gene "a" = q , then $AA = p^2$, $Aa = 2pq$ and $aa = q^2$. By use of this formula, the frequencies (as noted in Table 2) can be estimated. For example, if a recessive disease, such as phenylketonuria, has a frequency of 1:10,000, then one person in 51 is a carrier of the mutant gene. Based on the present estimated population of 180,000,000, there would be about 3,530,000 persons who are carriers of this gene in the United States. Although a recessive disease may be rare, a large number of the population will carry the gene in the heterozygous state.

Cytogenetics^{9,11,12}

It has been nine years since the chromosome number in man was found to be 46, and five years since the first known anomaly was demonstrated in man. Subsequently several chromosomal abnormalities have been found in association with clinical syndromes.

Familiarity with Figure 1 will help to make the following discussion more meaningful. This picture shows the metaphase chromosomes of a normal man arranged in an arbitrary pattern known as a karyotype. The chromosomes occur as homologous pairs, except in the male, where the sex chromosomes, X and Y, are not homologous. The chromosome pairs are numbered from 1 to 22 in decreasing size. The arrangement is also based on the constant position of the *centromere*, the point where the two *chromatid arms* of the chromosome are joined. The chromosome pairs are also organized into groups from A to C, since it is not always possible to distinguish definitively between the chromosome pairs in a given group.

The chromosomes have differing appearances during the life cycle of the cell. They are best visualized at *metaphase* or just before the cell divides. In the presence of colchicine, cell division is stopped at metaphase and a number of cells in mitosis can be accumulated for study. These chromosomes can be photographed and the individual chromosomes cut from the print and arranged into a karyotype as seen in Figure 1.

Chromosome abnormalities involve both the autosomes and the sex chromosomes, and include variations in their number and structure. Some of the more common anomalies will be briefly discussed.

The term *trisomy* is used to denote the presence of three similar chromosomes rather than a pair. For example, trisomy 21 indicates that there are three No. 21 chromosomes rather than two. This finding is common in mongolism or Down's syndrome. Two other well-recognized trisomies each

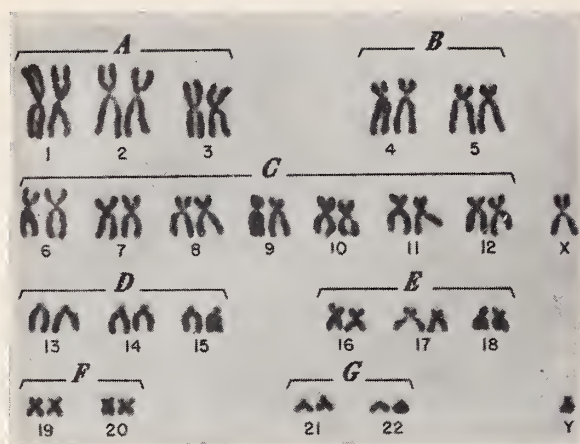


Figure 1.—Karyotype of metaphase chromosomes from a normal human male.¹

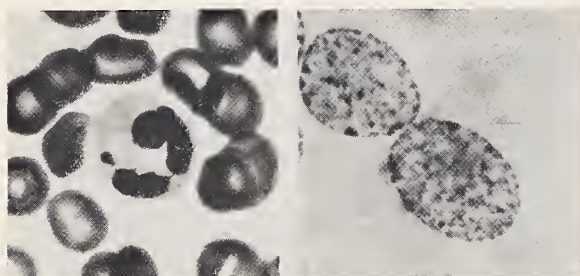


Figure 2.—The polymorphonuclear neutrophil on the left demonstrates the nuclear appendage, known as the "drumstick," projecting to the left of the lower lobe of the neutrophil. On the right are two somatic cells, each having a single sex chromatin body at the periphery of the nucleus; this dark appearing body is at the bottom of the nucleus on the left and on the top of the nucleus on the right.

involve a chromosome pair in the D and in the E group, and are called D_1 (13-15) and E (17-18) trisomies or syndromes. Because of the difficulty in assigning the trisomy to a particular chromosome pair, the group designations D and E often are used. *Monosomy*, the presence of only one member of a chromosome pair, has not been described in the autosomes, suggesting it may be lethal.

Deficiencies as well as excess numbers of the sex chromosomes have been found. *Monosomy* for an x chromosome, XO, is a frequent finding in the Turner syndrome. A YO individual has not been described, since such a chromosome constitution would probably be lethal. The presence of extra Y chromosomes (for example, XXY) seems to have relatively little effect, whereas extra x chromosomes in the presence of a Y chromosome (for example, XXY, XXXY) leads to the Klinefelter syndrome. In the female, extra x chromosomes (for example, XXX or triple-X syndrome) seem to have no consistent well-defined effect.

Numerical changes in chromosomes arise from errors during division of the cell and distribution

of the chromosomes to the daughter cells during mitosis or meiosis. Two types of errors have been described: *anaphase lag* in which a chromosome does not move in the normal manner to one or the other daughter cell; and *nondisjunction* in which chromosomes that normally separate move together to the same daughter cell, causing one cell to have an extra chromosome and the other to lack this chromosome.

An example of a structural change is a deleted chromosome in which some chromosomal material is lacking. A well-described deleted chromosome is the *Philadelphia chromosome* (Ph^1) which is found only in the blood and the bone marrow cells of patients with chronic myelogenous leukemia.²⁰ The involved chromosome is thought to be one member of pair 21, the same pair which is affected in mongolism. Such an individual is a *mosaic* because some cells have a normal karyotype and other cells have the deletion karyotype. Other types of mosaicism have also been recognized; for example, some individuals with mongolism have been found to have some cells with a normal karyotype and others with the trisomy 21 karyotype.

Another structural abnormality is a translocation in which there is a transfer of chromosomal mate-

TABLE 1.—Characteristics of Inheritance Patterns

I. AUTOSOMAL DOMINANT	
1.	Gene is located on one of the autosomes.
2.	Gene is present in the heterozygous state.
3.	Trait is found in successive generations.
4.	About 50 per cent of the children of an affected parent can be expected to also be affected.
5.	Males and females are equally affected.
II. AUTOSOMAL RECESSIVE	
1.	Gene is located on one of the autosomes.
2.	Gene is present in the homozygous state.
3.	Tends to be limited to one generation with one or more siblings affected.
4.	Each of the parents of an affected individual is a heterozygous carrier of the mutant gene and generally shows no manifestation of the gene.
5.	In many of the rare traits there is an increase in consanguinity or marriage between blood relatives in the parents of the affected individual.
6.	A mating between heterozygote carriers produces on the average: 25 per cent of the offspring are homozygous for the gene, 50 per cent are carriers, and 25 per cent will not have the gene.
7.	Males and females are equally affected.
III. SEX-LINKED (X-linked)	
1.	The gene is located on the x chromosome.
2.	The trait is usually limited to males.
3.	Females carry but usually do not show manifestations of the gene.
4.	The trait tends to skip generations since affected males have asymptomatic carrier daughters who in turn transmit the gene to half their sons.
5.	Affected males may have affected male relatives on the maternal side of the family.
6.	There is never transmission from father to son, because the son receives the Y and not the x chromosome from the father.

rial from one chromosome to another. In humans this has been described only for the autosomes, although it probably also involves sex chromosomes at times.

As mentioned earlier in the discussion of sex-linked inheritance, sex chromatin or Barr bodies are found in the somatic cell nuclei of humans with two or more X chromosomes. These are currently believed to represent inactive X chromosomes. The maximum number of such bodies for a cell is one less than the number of X chromosomes, irrespective of the presence of a Y chromosome (see Table 3). Therefore, examination of cells for this structure when a sex chromosome abnormality is suspected may be helpful and certainly is easier and much less time-consuming than a chromosome analysis. Figure 2 shows the appearance of a sex chromatin body in a somatic cell nucleus. Polymorphonuclear neutrophils in females sometime have a drumstick (see Figure 2) or small nuclear appendage and this is generally considered to be the manifestation of the sex chromatin body for this type of cell.

Dermatoglyphics^{25,35}

Dermatoglyphics or the study of finger, palm and sole prints has recently received renewed attention because alterations from normal in these patterns have been found in persons with certain chromosome anomalies. The pattern of fingerprints is to a large extent genetically determined, is established in the first four months of embryonic life and does not change thereafter. Possibly because several genes are involved in determining a pattern, fingerprints are unique for each individual and are useful for purposes of identification. They have also been found useful in determining whether twins are mon-

TABLE 2.—Gene Frequencies Based on the Hardy-Weinberg Law for Simple Single Factor Recessive Inheritance³³

Frequency of Affected Homozygotes (q^2)	Frequency of Heterozygote Carriers ($2pq$)
1 in 10.....	1 in 2.3
1 in 100.....	1 in 5.6
1 in 1,000.....	1 in 16
1 in 10,000.....	1 in 51
1 in 100,000.....	1 in 159
1 in 1,000,000.....	1 in 501

TABLE 3.—Quantitative Relation of Sex Chromatin Bodies to the x Chromosomes

Number of Sex Chromatin Bodies	Sex Chromosome Constitution	
	Male	Female
0.....	XY, XYY	XO
1.....	XXY, XXYY	XX
2.....	XXXY	XXX
3.....	XXXXY	XXXX

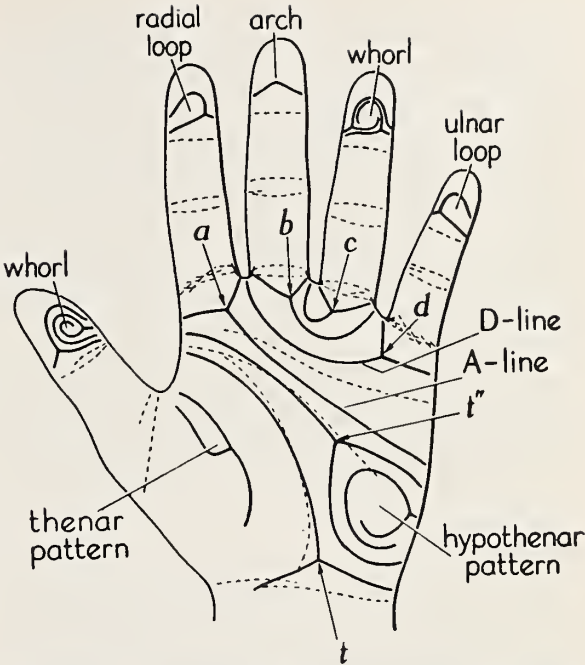


Figure 3.—Diagrammatic patterns formed on the palm and finger tips by the fine lines and ridges (not the creases). Triradii are formed when three ridges intersect: t represents the normal position and t' an abnormal high or raised palmar triradius; a, b, c, and d are also triradii; and, as demonstrated by the finger tip patterns, an arch has no triradius, a loop has one and a whorl has two triradii.²⁵

ozygous (identical) or dizygous (fraternal or non-identical), an important fact if twins are to be used in genetic studies.

Figure 3 shows diagrammatically some dermatoglyphic patterns and the terms used to describe these findings. The patterns correspond to the dermal ridges and not the obvious flexion creases. The finger tip patterns are the best known and most extensively studied.

Although the dermatoglyphic patterns are not pathognomonic, study of them can often be useful or confirmatory in a suspected diagnosis. The patterns can usually be recognized with the naked eye or with the help of a magnifying glass. For accurate analysis a print is necessary. It is difficult to make prints of the fingers of young infants and their patterns tend to be less distinct.

The following are brief descriptions of the findings in some of the chromosome anomalies. The most extensively studied disorder is mongolism (Down's syndrome). The characteristic findings in mongolism are: high palmar triradius (t' in Figure 3) which normally is less than a third of the distance from the distal wrist fold to the proximal crease of the middle finger; increased ulnar loops on the fingers (that is, the loops open to the ulnar side of the hand); and the presence of a loop

pattern in the third interdigital area (between triradii *b* and *c* in Figure 3). When the distal transverse palmar crease runs completely across the palm, it is known as a simian line or crease. Such a crease is common in mongolism.

In the E trisomy (17-18) syndrome there is an increased number of arches in the finger tip patterns.

Persons with the D₁ trisomy (13-15) syndrome frequently have a high palmar triradius and a simian line, both of which are also found in mongolism.

A quantitative analysis has been developed by Walker³⁶ for the dermatoglyphic analysis of the prints in mongolism. (For those who are interested, the details are best read in the original reference.)

Pharmacogenetics^{5,19}

Pharmacogenetics is the study of genetically determined variations that are revealed by the effects of drugs. The metabolism of drugs by the body is through enzymes which are genetically determined. Absorption, plasma-binding, interaction between drug and cell, breakdown, conjugation and excretion may be affected by enzyme action. At any of these levels minor genetically determined enzyme variations may occur. These variations, in association with environmental effects, combine to give a unimodal or normal distribution curve for drug decay or pharmacologic response. However, a bimodal or trimodal distribution suggests a single major gene effect. A number of genetically determined pharmacologic responses have been found in man.

Persons treated with INH (isoniazid) have been classed as slow or rapid inactivators of this drug. This characteristic appears to be determined by a single major gene concerned with the acetylation or inactivation of INH. The persons who are slow inactivators are homozygous for a mutant gene and constitute about half the American white population. A practical consequence of this phenomenon is that INH-induced polyneuropathy is almost limited to the slow inactivators who have high blood levels of INH.

About one person in three thousand may experience prolonged apnea when exposed to the drug suxamethonium, a muscle relaxant commonly used in anesthesiology and electroshock therapy. Affected persons are homozygous for a mutant gene which produces an atypical pseudocholinesterase. Apnea results because this atypical enzyme inactivates suxamethonium at a reduced rate, thereby permitting the drug to act longer than normally.

Glucose-6-phosphate dehydrogenase (G-6-PD) deficiency is a well-studied x-linked enzyme defect

affecting the first part of the oxidative pathway of carbohydrate metabolism. This defect was first noted in Negroes who had hemolytic reactions when treated with the antimalarial drug primaquine. Subsequently many drugs (for example, sulfa drugs and nitrofurantoin derivatives) have been found to cause this reaction. Affected Caucasians also have been described and they tend to have a more severe enzyme deficiency than do Negroes. Favism, hemolysis during infection, certain types of nonspherocytic hemolytic anemia and some cases of neonatal jaundice have been attributed to this enzyme defect. Since about 11 per cent of American Negro males have the trait, it becomes a practical consideration in unexplained hemolytic anemia in this group.

A decided variability in the response to certain coumarin drugs has been recognized for years, but only recently has there been described a specific hereditary transmission of exceptional resistance to coumarin anticoagulants. This represents the first example of hereditary drug resistance in man.²¹

Drugs are useful in the detection of asymptomatic heterozygote carriers of disease; for example, the increased urinary excretion of pentose in carriers of the gene for pentosuria in response to the administration of glucuronolactone, or in defective salicylate conjugation in carriers of the Crigler-Najjar syndrome. In some situations drugs will precipitate a disease—barbiturates touching off acute intermittent porphyria, for example, and possibly the production of a Parkinson-like syndrome by phenothiazine in certain individuals.

Heterozygote Detection^{13,18,37}

Knowing that a person is a heterozygote carrier may have little direct application to the health of the carrier himself, but it might play a significant role in the health of his children should he marry someone heterozygous for the same recessive trait. Table 4 indicates a number of disorders in which the carrier state may be identified; however, not all of the females heterozygous for an x-linked gene can be identified.

Genetics as an Aid in Diagnosis

Genetic research has led to the separation of groups of diseases with similar clinical pictures into individual distinct diseases. For example, six different syndromes involving intestinal polyps have been described.¹⁴ These are: (1) familial polyposis of the colon, an autosomal dominant disease with strong malignant tendencies; (2) the similarly inherited distinct polyps of the rectum and colon with malignant potential; (3) the autosomal dominant Peutz-Jeghers syndrome in which benign polyps of the gastrointestinal tract are associated with pigmentation of the buccal mucosa, lips and fingers;

(4) the Gardner syndrome in which premalignant polyps of the colon occur with soft tissue tumors and osteomata; (5) the rare Turcat syndrome of polyposis with a tumor of the central nervous system; and (6) the rare association of polyps with multiple endocrine adenoma.

External signs in genetic disorders may lead to recognition of internal disease—for example, the Peutz-Jeghers syndrome and the Osler-Rendu-Weber syndrome (hereditary telangiectasia). Some diseases, such as the Hurler syndrome, may be due to different genes, the effects of which are clinically indistinguishable. One form is x-linked and the other is an autosomal recessive trait. Although the sex-linked variety tends to be a less severe disease, both types are grave illnesses and the main advantage in distinguishing the syndromes is that accurate genetic counseling can be given for other family members. At present the best way to distinguish the two diseases is through a careful family history to establish the pattern of inheritance.

Immunogenetics²⁷

Both the immunologic and genetic aspects of the blood groups have been thoroughly studied. This knowledge has formed the basis for blood transfusion therapy and is a major step toward the understanding of erythroblastosis. The blood groups are under genetic control, each type being determined by a single gene. For each given blood group system, such as the ABO or MN, a specific and separate genetic locus is involved. Recently the first x-linked blood group, Xg^a, was discovered.¹⁶

Considerable attention has been focused on the

immunogenetics of tissue transplantation.⁴ At least several genetic loci are involved in determining the antigens of tissue cells. All or almost all of these genetically determined antigens must be alike in two individuals—for example, as in identical twins—if a successful tissue transplant is to be expected. The problem of typing tissue cells in a manner similar to that used for the blood cell types, is under investigation in the hope that selection of a donor antigenically similar to a recipient can be determined before a transplant is attempted. Another approach to the transplantation immunity problem is the use of radiation or drugs to suppress the immunological competence of the recipient so that he will not reject a tissue graft, even if it contains foreign antigens. Success in these endeavors will make possible a host of therapeutic measures not currently available.

Mental Diseases²⁴

The genetic aspects of mental retardation and psychiatric illness present unresolved problems. Some instances of mental retardation can be explained on a simple genetic basis. These include metabolic defects such as phenylketonuria and galactosemia, and chromosome anomalies such as mongolism. However, the majority of mental disorders have no explanation in terms of a recognized environmental or genetic abnormality.

A major portion of the variability in intelligence level is probably genetically determined and a number of genes or polygenes involved in its control. In support of this concept are the large number of different genetic disorders which can cause mental

TABLE 4.—Heterozygote Detection in Recessive Diseases

AUTOSOMAL RECESSIVE DISEASE	HETEROZYGOTE MANIFESTATIONS
Acatalasemia	Decreased red cell catalase level
Afibrinogenemia	Reduced fibrinogen levels without symptoms
Crigler-Najjar syndrome	Decreased glucuronide formation with salicylates
Cystic fibrosis of pancreas.....	Some have increased sweat Na and Cl
Galactosemia	Reduced enzyme activity (galactose - 1 - phosphate uridyl transferase) of red cells
Goitrous cretinism (dehalogenase deficiency).....	Decreased dehalogenase activity
Hemoglobin C disease.....	Hemoglobin C trait (by hemoglobin electrophoresis)
Hypoproconvertinemia (Factor VII deficiency).....	Decreased levels of proconvertin (factor VII)
Hypophosphatasia	Reduced serum alkaline phosphatase; excretion of phosphoethanolamine in urine
Non-spherocytic hemolytic anemia (pyruvic kinase deficiency).....	Lowered pyruvic kinase activity in red cells
Methemoglobinemia (diaphorase deficiency).....	Decreased diaphorase in red cells
Parahemophilia (Factor V deficiency).....	Reduced factor V in blood
Phenylketonuria	Abnormal phenylalanine tolerance
Pentosuria	Increased urinary excretion of pentose after glucuronolactone administration
Sickle cell anemia.....	Sickle cell trait (hemoglobin electrophoresis)
Thalassemia major	Thalassemia minor or trait
X-LINKED DISORDERS	
Hemophilia	Reduced levels of antihemophilic globulin
Muscular dystrophy	Elevated serum creatine phosphokinase
Nephrogenic diabetes insipidus.....	Reduced ability to concentrate urine
G-6-PD deficiency	Decreased red cell enzyme activity

retardation and the fact that in a population the intelligence test scores tend to fit a unimodal normal distribution. The group that falls on the lower end of the curve will have mental retardation due possibly to an interaction of several genes, none of which alone leads to mental retardation.

In schizophrenia heredity may play a significant, but still undefined role.³² Siblings of schizophrenic persons have almost a ten-fold increased risk of becoming schizophrenic. In addition, twin studies show a high concordance in monozygous or identical twins. However, there seems to be no familial tendency to a specific type of schizophrenia. Other work suggests that a single gene may be involved if one assumes its action is intermediate between dominance and recessivity. Considerably more work is needed before the role of genetics in mental illness is clarified.

Genetics and Radiation²⁹

The increasing exposure to radiation through medical examinations and atmospheric fallout has led to considerable interest in the effect of this radiation on the genetic constitution of man. Although significant experimental work has been done in other species, relatively little direct information is available on the effect of radiation to humans. The natural or spontaneous mutation rate for man has been calculated to be about 10^{-5} (that is, one mutation per locus per 100,000 gametes per generation). The effect of radiation on this rate is unknown. This is because a large proportion of mutations are recessive and only a few may become manifest in the first generation after they are produced. Observations in Japan indicate that one effect of radiation is to cause a reduction in the number of male births (through an unknown mechanism).

Treatment and Management of Genetic Diseases¹⁵

Genetic diseases cannot be cured. However, this should not cause dismay, since the management and treatment of these disorders is continually improving as more knowledge of them is obtained. Illustrative examples of the various available approaches to different genetic problems are given below.

Elimination diets in phenylketonuria and galactosemia seem to present a successful approach to preventing at least some of the manifestations of the untreated disease. Diseases precipitated by exposure to drugs—such as barbiturates in porphyria or sulfa drugs in G-6-PD deficiency—can be better controlled by keeping the drugs from affected persons. Some hereditary disorders are due to accumulation of substances in the body; the manifestations

of hemochromatosis are related to excessive storage of iron in the body, which can be relieved by periodic phlebotomy. In Wilson's disease, copper accumulates is excessive, and removal of it by chelating agents, such as penicillamine, will usually lead to clinical improvement. When a gene product is reduced or missing, such as gamma globulin in agammaglobulinemia or antihemophilic globulin in hemophilia, exogenous replacement of these products improves the symptoms considerably. Exchange transfusions are an important part of management in erythroblastosis. A possible future extension of replacement therapy may be through tissue or organ transplantation—for example, bone marrow replacement in hemoglobinopathic conditions. Colectomy in premalignant cases of polyposis of the colon is a good example of preventive medicine. Surgical operation can also play a role in controlling the manifestations of genetic disease, such as splenectomy in hereditary spherocytosis.

Genetic Counseling^{10,15,28}

Genetic counseling is probably the most unique aspect of clinical medical genetics. However, all physicians become involved with problems requiring knowledge in this matter.

Good genetic counseling includes a diagnosis and a prognosis. This will concern the affected person, relatives and persons yet unborn. Ideal prerequisites for good genetic counseling include: A clearly established diagnosis; a careful and complete family pedigree, and examination of additional family members when possible; a background in basic genetic principles; and knowledge of the recent literature concerned with the disease in question. Common sense, good judgment, compassion and awareness of social stigma which may sometimes be associated with genetic diseases are important in counseling.

There is general agreement that it is best to give the facts and let the family members make their own decision, for example, as to whether they should have more children. The manner in which counseling is given may make more of an impression than the facts themselves, and it should be obvious that different people may look on a certain risk differently, depending in part on what they expected the recurrent risk to be. For example, if one anticipates a 100 per cent risk, a 25 per cent risk may seem reasonably favorable.

Knowledge of recurrence risks assumes a major role when one is concerned with the possibility of unborn persons being affected with an hereditary disorder. When the disease in question is due to a specific genetic factor and the inheritance pattern for the disease has been established, it is possible to give definite statistical risks or recurrence risks

based on the laws of inheritance for autosomal dominant, autosomal recessive and sex-linked traits. (These were discussed previously under *Types of Inheritance*, and were also shown in Table 1.) It should be emphasized that only statistical chances can be given and that one cannot predict the outcome of a given pregnancy.

For many diseases a familial pattern may seem to be present, but the pattern of inheritance is not simple or established. In these situations empiric risk figures are available, based on the study of large numbers of cases. In general it seems that the more common a disease, the more difficult it is to provide accurate and helpful risk rates for genetic counseling.

Presentation and discussion of some of these recurrence risk figures may be of value. In occasional families there may seem to be an unusual tendency for a specific defect to occur; these families have to be considered separately and general empiric risk figures should not be used. Congenital diseases often present occasions for giving recurrence risk figures to parents. Table 5 summarizes data for anencephaly and spina bifida aperta, and hare-lip and cleft palate.^{7,8}

Clubfoot occurs about once in 1,000 births and usually no simple pattern of inheritance is apparent. If neither parent is affected, but there is one affected child, the recurrence risk in future pregnancies is 3 per cent. If the parents are close relatives this figure can be 3 to 25 per cent.

Congenital heart disease, not associated with specific syndromes, has almost a 2 per cent chance of recurrence in a family of normal parents and one affected child.⁷

About 6 per cent of the population is at risk to develop diabetes by age 30. However, if unaffected parents have a diabetic child, a subsequent child has a 5 per cent chance of becoming diabetic before age 20 and a 10 per cent chance of becoming dia-

betic by age 60. A child of an affected parent has a 5 to 15 per cent chance of becoming diabetic by age 30.⁷

Epilepsy has a 0.5 per cent incidence in the population. It has been noted that 3.2 per cent of parents, siblings and children of epileptics are epileptic. However, 22 per cent of the siblings of children having "centrencephalic" epilepsy, also gave a history of seizures varying from only one or two seizures to a chronic medical problem of seizures.⁷

Siblings of a child with nonspecific severe mental deficiency have a 3 per cent risk of also being mentally retarded.⁷

Chromosome anomalies present a special group; and mongolism, which has been the most extensively studied,^{23,26} will be discussed here.

The recurrence risks are considerably different in the common trisomy 21 and the less common translocation varieties. At this time the only way to distinguish these two groups is by chromosome analysis. The recurrence risk for the translocation type depends on the type of translocation and is considerably higher than for trisomic mongolism. If the translocation occurs between a chromosome 21 and chromosome 22 or one in the D group (13-15), the theoretical distribution among the siblings of an affected person is an equal proportion of translocation mongols, normal individuals and normal carriers of the translocation. Hence the recurrence risk is 33 per cent. If the translocation occurs between two chromosomes 21, all surviving siblings will also be translocation mongols, giving a recurrence risk of 100 per cent.

Translocation mongols form part of a group which seems to be maternal age independent—that is, the maternal age does not affect the frequency.

About 80 per cent of the mongols form a group in which incidence increases with maternal age and who have the usual trisomy 21 chromosome abnormality. In general the incidence of mongolism is

TABLE 5.—*Recurrence Risk Figures (Adapted from Fraser^{7,8})*

<i>Disease</i>	<i>One Child Affected</i>	<i>Two Children Affected</i>	<i>Per Cent Risk for Anencephaly</i>	<i>Per Cent Risk for Spina Bifida Aperta</i>
Anencephaly	X ....	.... X	1 10	2 10
Spina Bifida Aperta.....	X ....	.... X	1 10	2 10

<i>Disease</i>	<i>Normal Parents</i>	<i>One Affected Parent</i>	<i>One Affected Child</i>	<i>Two Affected Children</i>	<i>Per Cent Recurrence Risk</i>
Hare-lip with or without cleft palate....	X X .... ....	.... .... X X	X X	.... X	4-7 10 2 11
Cleft palate without hare-lip.....	X .... ....	.... X X	X X	.... .... ....	2-5 7 17

TABLE 6.—*Recurrence Risks for Trisomic Mongolism at Different Maternal Ages (Adapted from Carter and Evans²)*

Maternal Age	Per Cent Recurrence Risk (Approximate)
15-19	0.05
20-24	0.1
25-29	0.1
30-34	0.15
35-39	0.4
40-44	1.1
45 plus	1.9

TABLE 7.—*Genetic Identity Between Relatives³⁰*

Relation	Proportion of Genes in Common
Identical twin	1
Parent, child, sibling, fraternal twin.....	1:2
Grandparent, grandchild, uncle, aunt, nephew, niece, half-sibling, double first cousin.....	1:4
First cousin	1:8
First cousin, once removed.....	1:16
Second cousin	1:32
Third cousin	1:128

TABLE 8.—*Proportion of Consanguineous Marriages in Some Autosomal Recessive Diseases¹³*

Disease	Frequency of Homozygotes	Frequency of Heterozygotes	Per Cent in Consanguineous Marriage
Cystic Fibrosis of Pancreas	0.0009	0.06	No increase
Adrenogenital Syndrome	0.0002	0.028	No increase
Tay-Sachs disease	0.00012	0.022	2
Albinism	0.00005	0.014	8
Phenylketonuria ..	0.000035	0.012	10-12.5
Cystinosis	0.000025	0.01	12
Hurler syndrome.. very rare	.....	.....	20-30

TABLE 9.—*Genetic Counseling Centers in California*

Location	Person to Contact
1. Children's Hospital	Dr. George Donnell Los Angeles
2. Children's Hospital	Dr. David Linder San Francisco
3. City of Hope Medical Center	Dr. William Kaplan Duarte
4. Department of Medicine....	Dr. Russell Rohde County General Hospital, Los Angeles
5. Department of Biology.....	Dr. Kenneth Taylor San Diego State College, San Diego
6. Department of Medicine....	Dr. Thomas Merigan Stanford Medical Center, Palo Alto
7. Department of Pediatrics..	Dr. Carolyn Piel University of California Hospital, San Francisco
8. UCLA Medical Center.....	Dr. Stanley Wright Los Angeles (Department of Pediatrics) Dr. Robert Sparkes (Department of Medicine)

about one in 600 births. However, depending on the age of the mother the risk may vary from about one in 2,500 in young mothers to one in 50 in old mothers. The incidence for various age groups is summarized in Table 6. Taking all mongols as a group: the overall chance of recurrence regardless of maternal age is 1 to 2 per cent; if the mother is under 25 years of age the recurrence risk is 50 times the random risk for her age group. This decreases to five times the random risk for mothers aged 25 to 35. There is no increased risk for mothers over 35. If the parents are normal, the mother is under age 35 and the affected child has trisomy 21, the recurrence risk is six times the random risk for the mother's age.

The recurrence risk for other chromosome anomalies is less clear. Theoretically it may be somewhat similar to that for mongolism, depending on the general incidence of the anomalies. A maternal age effect also seems to be present for the D₁ and E trisomies as well as the Klinefelter syndrome.

Consanguinity^{17,31}

Consanguineous marriages or marriages between close blood relatives are limited in our society. When considering recessive diseases, avoiding such marriages is a sound genetic policy, because random mating is less likely to bring two rare recessive genes together than if blood relatives marry. Table 7 shows the proportion of genes in common between relatives; it is generally thought that marriages between individuals less closely related than second cousins have little practical chance of increasing the risk of occurrence of recessive diseases in their offspring. Table 8 shows the importance of consanguineous marriages to the frequencies of some diseases.

The chance that a person with a recessive disease will have a similarly affected child is low, but marriage to a first cousin causes a 64-fold increase in the risk.

Sources of Genetic Counseling in California

Physicians are often hesitant to become involved in genetic counseling. The above discussion only touches on some aspects of medical genetics and genetic counseling. Therefore, a list of people and institutions in California known to the author to be interested in genetic counseling is presented herewith (Table 9).

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Continuing Medical Education

AMA Interests in Coordination

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WHEN I ACCEPTED Dr. George Griffith's gracious invitation to participate in this meeting on the coordination of continuing medical education I wrote: "I hope you won't mind if I preface my remarks with some personal thoughts about the subject." He did not say "no" to that implied request, so I'll begin by baring my bias.

I am convinced that physicians are dedicated to the principle that they will be students all their lives. Nevertheless, it has been said that the lag is too great between the development of new knowledge and its application in medical practice. There's talk of an "information explosion," with the implication that people don't benefit from advances in medical science because their physicians can't possibly be aware of all the advances. Along with this goes the thought that the means of supplying new information to physicians are out of date and inadequate.

On the first point, it's certainly true that physicians aren't aware of everything that's new in medical science, but they do have ready access to anything that's new *and applicable* in medical practice. The distinction here is between total knowledge and total *applicable* knowledge.

A still finer distinction can be made if you'll recall that medical practice has become highly specialized. Acquisitions of knowledge by physicians have become correspondingly specialized. No one physician acquires all applicable knowledge, but it is expected that an array of physicians will—and they do. Their "shares" of new knowledge overlap and link together and are available by means of consultation whenever a patient has a problem so complex that it can be solved only by means of some part of the "new" knowledge.

On the second point—the adequacy of the means of supplying new information—I submit that the "information explosion" is minor compared with the "conference-about-information explosion." Perhaps the medical profession was partly responsible for the latter explosion when it authorized the work that culminated in the Dryer report, "Lifetime Learning for Physicians" (1962). However, that same year (1962) the Surgeon General of the United States Public Health Service (USPHS) sponsored the first in a series of conferences to worry about how to keep physicians informed of scientific advances. The whole problem has been complicated by Congressional concern principally about drug information. So it was that last year the USPHS and the National Institutes of Health (NIH) both

Presented at the Conferences on Coordination of Continuing Medical Education held by the Committee on Continuing Medical Education of the Scientific Board, California Medical Association, at Los Angeles, November 14, 1964, and San Francisco, November 15, 1964.

sponsored studies on the subject of scientist-to-scientist communication in the biomedical field. Incidentally, both studies were performed by the same agency and the resulting reports were similar in many respects and most notably in their advocacy of monumental machine methods of communication. In addition, there were the deliberations of the Commission on Drug Safety and conferences sponsored at different times by the University of Pennsylvania, Johns Hopkins University and the New York Academy of Sciences. Early in 1964 there was announcement of a large grant from USPHS to Columbia University to look into the problem of physicians' postgraduate education—how much, how obtained, how effective.

If I were not a physician, if I were not aware from first-hand experience, I would interpret all these concerns about continuing education to mean that physicians have an almost incurable ignorance. The time is ripe for letting the public know that we are satisfactorily enlightened—that our patients can count on getting the latest when it's best.

Be sure, I am not complacent. I recognize that educational programs for physicians need improvement and that some physicians are unable or unmotivated to participate in existing programs. Also, efforts to coordinate are surely to be praised so long as "coordinators" do not fall into the same trap in which I believe the "communicators" now find themselves.

Now that I've exposed my bias, I shall address myself to the main topic, dividing it into three parts—the American Medical Association's present activities in continuing education, existing evidence of coordination and plans for the future.

Present Activities in Continuing Education

AMA's present activities can be subdivided into two parts—programs of education and programs of accreditation. In the first category are included sponsored meetings and publications.

Education. The Association's two regular annual meetings—the Annual Convention and the Clinical Convention—are supplemented each year by a variable number of conferences, congresses and symposia. During 1963, "supplements" numbered 23 and that number will be exceeded this year.

The Annual Convention is well enough known in California that I shall not describe it except to say that it is, by any standards, the largest national medical meeting. For example, last June in San Francisco, total registration was 49,437, including 14,229 physicians. It is estimated that in New York in 1965 the numbers will be 69,500 and 24,900, respectively. The Clinical Conventions are much smaller, but for the combination of these two annual

meetings, the Association attracts large numbers of would-be learners. Hopefully, more can be done in the future to make their learning experience effective.

The regular scientific publications of the Association are *JAMA*, distributed weekly to about 204,000 subscribers, and the ten monthly specialty journals having a circulation of about 218,000. Each year, four or five books are published, including regular publication of "Current Medical Terminology" and "New and Nonofficial Drugs."

CMT seeks to regularize the language of medicine and, incidentally, may be one of the strongest forces for coordination by simplifying communication. NND next year will appear in new form and structure as "New Drugs" and will be a far more effective instrument.

At present rates, the Association also prepares six or seven new scientific exhibits, publishes the "proceedings" of four or five conferences or symposia, and prints for distribution 30 to 35 scientific pamphlets on subjects of interest to physicians (as distinguished from pamphlets for distribution to the public).

The Department of Drugs and its related Council merit special recognition for their rapidly expanding, more effective communications to the profession. NND and the forthcoming "New Drugs" have already been mentioned. Additional contributions about drugs appear weekly in *JAMA* and periodically in the distribution of reports of adverse reactions from the Registry maintained especially for the purpose of monitoring, with the aid of the profession, records of untoward effects of drugs and other chemicals.

Accreditation. In its report to the House of Delegates last June, the Council on Medical Education indicated a long-standing interest in devising methods to insure that programs of continuing education are effective. Annually since 1940, the Council has provided a list of short courses. In 1957, a Council-sponsored "Guide Regarding Objectives and Basic Principles of Continuing Education Programs" was approved by the House of Delegates and, with some revision in 1960, has been widely used.

With the "Guide" as a basis, the Council launched a study of methods for accrediting programs. This included development of survey techniques by "pilot" examinations of existing programs. Accordingly, the Council submitted recommendations (promptly approved by the House of Delegates in June, 1964) as follows:

1. A nationwide voluntary accreditation program for continuing medical education is desirable and feasible and should be established at the earliest

opportunity by the Council on Medical Education of the American Medical Association.

2. In the accreditation program, attention should be concentrated on institutions and organizations offering courses rather than on individual courses. The principle of institutional approval has been used for years in medical school surveys and has proved to be essentially sound.

3. Appraisal of an institution's or organization's program should be carried out only at the request of the institution or organization.

4. Approval of an institution or organization should be based on appraisal of the accomplishments as judged by the principles contained in *A Guide Regarding Objectives and Basic Principles of Continuing Education Programs*.

5. A Review Committee on Continuing Medical Education, broadly representing all viewpoints in continuing medical education, should be established to review the programs of all institutions and organizations surveyed and to recommend action by the Council on Medical Education. To permit satisfactory review of a program, the Review Committee should be supplied with all pertinent information.

6. Final action to approve or failure to approve the program of each institution or organization will be taken by the Council on Medical Education after receipt of the recommendations of the Review Committee on Continuing Medical Education and all other available information.

7. An approved institution or organization should be so designated in the Council's annual lists of "Continuing Education Courses for Physicians." The exact time at which such designation shall first appear should be dependent on later developments. After all institutions and organizations which wish to list their courses have had the opportunity to be considered for approval, only courses of approved institutions and organizations should be included in the annual list as published.

It is regrettable that illnesses of key staff personnel have delayed the activation of the new accreditation program for more than six months. However, it is expected to begin in the spring of 1965.

Evidences of Existing Coordination

In view of the heavy investments by the AMA of time, money and men in continuing education, it is to be expected that the Association would be interested in coordination of educational efforts wherever such coordination will enhance efficiency. Further, in keeping with the prophet Isaiah's admonition to "set your house in order," it is appropriate that the Association look first at its own programs.

The outstanding example of intramural coordination of AMA programs is in the arrangement of the two conventions sponsored annually. All resources of the staff are tapped, and many of the councils and committees are drawn into the planning and execution. In the forefront for the scientific program are the Council on Postgraduate Programs, the Section Committees of the Scientific Assembly and, of course, the staff of the Department of Postgraduate Programs.

During recent years the Council has successfully promoted interesting innovations in program design—the research forum, the display of techniques in laboratory diagnosis, the combining of section programs, the introduction of symposia and exhibits sponsored by other Councils and committees, to name a few.

It is noteworthy that all these innovations are movements, more or less, of coordination, mainly internal but to some extent external as well. Other efforts to coordinate AMA educational activities with those of other groups include such items as the convention programs jointly sponsored by the AMA and the American College of Chest Physicians, the Stroke Congress held in Chicago in October, the two Congresses on Mental Health (1962 and 1964) and the numerous symposia and conferences that have been mounted in recent years jointly with other scientific societies, voluntary health agencies, agencies of government, and schools of medicine.

Education about Drugs

Brief mention has already been made of the educational functions of the Department of Drugs and its related Council. Now it is appropriate to extend those remarks in order to show the extent to which cooperation with other groups and coordination of efforts are essential to successful dissemination of information about drugs and drug therapy to our profession. Three groups are involved—the AMA, the FDA and the pharmaceutical manufacturers—and three types of information are important—drug names, drug evaluation and assays of adverse reactions.

When a new drug is in prospect for the market, it is of the utmost importance that it receive a name by which it will be universally known. The name given by the manufacturer does not serve for a variety of reasons but most importantly because the manufacturer's name is a trade mark, and other manufacturers will adopt other trade marks, all different. So it is that a single non-proprietary or generic name is essential if future communications about the drug are to be understandable. A few years ago the AMA and the U.S. Pharmacopeia Convention formed the Council for

United States Adopted Names (USAN), and more recently the American Pharmaceutical Association has joined the Council. Pharmaceutical manufacturers have a good record of cooperation with the USAN Council—supplying information at an early date so that the Council can quickly provide nonproprietary names, thereby preventing the confusion that would result from multiple names for the same drug.

Under the 1962 Kefauver-Harris amendments to the Food, Drug and Cosmetic Act, the Secretary of Health, Education and Welfare (HEW) has a responsibility for providing simple nonproprietary names for drugs. In effect, that responsibility has been delegated to the FDA and, to date, the Commissioner of the FDA has given tacit approval to the names produced by the tripartite USAN Council. In contrast to some of the nonproprietary, tongue-twisting, unspellable names that came into being before the formation of the Council, the Council-adopted names are generally meaningful, short, spellable and pronounceable. (Incidentally, the costs of staffing the Council are borne by the AMA.)

Objective evaluation of drugs is the largest single mission of the Council on Drugs. It is accomplished with a nucleus of competent, full-time professional staff, assisted by scores of consultants, most of whom are drawn from medical school faculties. The combined efforts of these people result in the authoritative statements that are published weekly in *JAMA* and later reworked into the annual publication formerly called NND and to be retitled in 1965 as "New Drugs," in recognition of wholly new content and format.

The work by staff and consultants in drug evaluation is enormous but, on the subject of coordination, could not be effected without a constant flow of information from pharmaceutical manufacturers and the FDA. With rare exceptions, the record of cooperation in this venture is outstanding.

However carefully a drug is studied before it reaches the market, full knowledge of its usefulness and potentiality for producing adverse effects cannot be obtained until it is available for widespread use by physicians in all walks of practice. In general, facts about usefulness come more readily to light than those about adverse reactions.

For the purpose of enlightening the profession about adverse reactions, the AMA Registry for Adverse Reactions has been formed, based upon the successful procedures of the prototype Registry for Blood Dyscrasias. Description of the details of organization and operation of the expanded Registry is not strictly relevant to this talk, but the story of its coordination with other groups is highly relevant.

In essence, the program for collecting data about

adverse reactions to drugs is a cooperative effort of the AMA and the FDA. The FDA receives information from all federal hospitals and a limited number of civilian hospitals. The AMA has its sources in the other civilian hospitals and the medical profession at large. Both agencies are supplied with reports from pharmaceutical manufacturers. The data-processing methods of the two agencies have been made compatible so that information from all sources can be freely exchanged. According to present intentions, AMA panels of experts will evaluate all reports of adverse reactions, and the AMA will be responsible for delivery of appropriate information to the medical profession.

At the most recent meeting of the Council on Drugs, the hope was expressed that the constituent and component medical societies of the AMA can be drawn more closely into the nationwide program for reporting adverse reactions. The program also has potentialities for international use through the World Health Organization (WHO), but full exploitation of that use has not yet been achieved.

For the Future

In a sense, interest in coordinating programs of continuing education—interest generally and interest on the part of the AMA specifically—is relatively new. Indeed, the very term "continuing education" has only recently come into popular use as a replacement for "postgraduate education," presumably because the new term is more descriptive and more dynamic. This is not to say that coordination has not prevailed; rather it is to emphasize that *planning* for coordination, which is the essence of effective coordination, has not been fully exploited. In that respect, the work of the California Medical Association is an inspiration to the entire profession.

The AMA has given evidence of planning for the future both internally as well as externally. And this brings to mind the possibility of a national plan, first exposed by Ward Darley and later expounded by Bernard V. Dryer in "Lifetime Learning for Physicians"—a report prepared under the aegis of a study committee representing a group of national medical organizations.

I assume that all of you are familiar with that fascinating document, at least by title. Its author described it as a "study," which strictly speaking it is not, but whatever it is and however you react to it individually, I believe you'll admit that it has been a powerful stimulus in the contemporary educational scene.

Each time I have studied "Lifetime Learning for Physicians" I have been reminded of Archimedes' statement, "Give me a place to stand and I will move the earth." I am personally convinced

that something can and should be done with Dryer's report. But, as with Archimedes' concept of a lever long enough and a fulcrum strong enough, I am still unsure of the platform. It may well be that a variety of levers, fulcrums and standing places will be needed before the educational orbit can be shifted.

Meanwhile, Dryer's ideas have not been neglected by the AMA. In November 1962 the Board of Trustees approved a limited exhibition of a national plan, to develop a curriculum and methodology for a program in cardiovascular diseases and to test it in suitable places. A committee of experts was assembled. They soon decided that a curriculum for the totality of cardiovascular diseases was too much for a first effort and focused their attention on atherosclerosis as the subject. Next, that seemed too large, and acute myocardial infarction was chosen. With Dr. Dryer as a consultant, the committee assembled a "core curriculum" for that subject in the form of a topical outline embellished with critical questions and a syllabus for one topic, namely, resuscitation. Currently, the staff is engaged, with the assistance of expert consultants, in the assembly of a program for that topic.

Whatever the form, whatever the sources, whatever the methods of delivery of a "national plan" of continuing education, I am convinced that suitable coordination of existing programs is of immediate importance. And this leads to the following:

Conclusion

Coordination of existing programs of continuing education, properly carried out, which is to say *not* carried to the point at which the coordinating process preempts the educational process, should improve the efficiency of the educational effort. This must be considered from two points of view—that of the "teachers," the producers of the programs,

and that of the "learners," the consumers of the programs.

For example, suppose that there exist several discrete programs, a, b, and c, the production of which requires the expenditure of *energy* in the amount, x . (The word *energy* is used here to include all that goes into production—man hours, worry, money, and the like.) The decision is made to combine or coordinate the several programs. Then it is found that the expenditure of *energy* is $x \pm y$. From the producer's viewpoint the extra expenditure, y , may seem unjustified, but he must now reflect upon the consumer's viewpoint.

For the latter, suppose that programs, a, b, and c, when discrete, had an *energy yield* exactly equal to the *energy expenditure*, x . (The term, *energy yield*, is intended to signify all that accrues to the benefit of the learner. It is a sum of factors, some negative, some positive.) Suppose, further, that with the coordinated production, the *energy yield* exceeds x by a factor greater than y . Then it might be concluded by producer as well as consumer that coordination had been worth while.

The trouble with these algebraic musings is that we lack precise methods for measuring what I have called *energy expenditure* and *energy yield* and, for the most part, fail to use even the imprecise methods that are available. Admittedly, however, measurement methodology is not always needed. For example, if the AMA Sections on Dermatology, Internal Medicine and Pathology and Physiology each signified an interest in producing a program at an Annual Convention on disseminated lupus erythematosus, it could be expected that coordination would have a positive value. To put it simply, precision in measurement of the teaching-learning process is greatly to be desired for some purposes, but there's no rule against the use of common sense.



Continuing Medical Education

Attitudes and Activities in Schools of Medicine

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IT IS A PRIVILEGE and an opportunity to speak to you on the activities and attitudes of California medical schools toward continuing education in medicine and the health sciences. My own participation in this program will of necessity require a strictly parochial approach. I am not personally familiar with the programs at Stanford, Loma Linda, University of Southern California, University of California at Los Angeles or the California College of Medicine. I am somewhat familiar with programs which have been developed at the University of California San Francisco Medical Center, and many of my remarks will relate exclusively to the activities at that institution. Nor can I speak knowledgeably about the potential of new programs at new medical schools as currently being planned under the auspices of the University of California.

As you know, new medical schools are in the process of activation at San Diego-La Jolla and at Davis-Sacramento. Whereas each of the existing medical schools has its own particular approach to continuing education, programs to be developed in the new schools may and, indeed, should have their own unique characteristics.

From an historical point of view, medical schools have been undergoing a continuing evolution in their relationship to the education of physicians after graduation. Medical education was originally

an apprentice system—a mode of education which was succeeded in the 1890s by the formation of formal undergraduate curricula. Grafted upon the undergraduate curricula, in the 1910s-1920s, came the evolution of graded study for the house staff—for interns, for residents and later for specialty training. Now we are experiencing a ground swell of demand from the profession for an extension of training and educational opportunities beyond the level of the current house staff and specialty training programs. This demand has been met by various presentations of postgraduate courses. Witness the programs offered by schools of medicine, community hospitals, voluntary health agencies, specialty societies, local, state, regional, and national medical societies and others. But even the apparently extensive proliferation of course offerings of the present day is not thought to be adequate to meet the requirements for the future continuing education of practicing physicians. It is estimated that continuing education courses have an audience of but 20 to 30 per cent of the population-at-need. In a different perspective, there is an estimated under-saturation of the market to the extent of 70 to 80 per cent.

The above sequence of evolutionary changes in medical education emphasizes the importance of the currently evolving concept that professional education is a life-long activity. The enunciation of such a principle has far-reaching implications, in particular for the schools of medicine; it implies the acceptance of a responsibility by schools of medi-

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cine for continuing education of the graduate throughout the entire professional life span. The implementation of such a responsible program for continuing professional education is, of course, rendered difficult by shifting loyalties and the normal mobility of the physician population. Approximately one third of the physicians of California are trained within the state: The allegiances of immigrant physicians do not necessarily attach to local medical schools.

Multiple pressures will inevitably create a demand for an expansion of all existing programs in continuing education. This is an overt expression of the changing ecology and mission of the physician. Increases in medical knowledge, the necessities for improved communication and for more effective utilization of knowledge, create pressures which make it mandatory that every physician maintain himself in contact with and abreast of changes in medical knowledge. It is incumbent, then, that the medical schools and the medical profession at large take cognizance of changing needs!

The following is a brief summary of the spectrum of activities of the University of California San Francisco Medical Center program of Continuing Education in medicine and the health sciences for 1963-64. Ninety-five courses were organized and offered to an estimated attendance of 18,171, including students, interns, residents, research staff, faculty members, registered physicians and guests. Total attendance in courses has increased greatly, from 1,133 in 1955-56 to the current level and 1,038 speakers participated in presentation of the 95 courses. Of this total, 683 were members of the faculty of the University of California San Francisco Medical Center, 566 were from other institutions in the bay area, 113 came from other states and nine were from foreign countries. Courses ranged in length from one day to seven days, the faculty ranging from 10 to 75 per individual course.

Courses were presented to physicians, nurses, pharmacists, laboratory technologists, dieticians, physical therapists, dentists, x-ray technicians, veterinarians, community health groups, teachers and members of religious groups. Courses offered in response to the demand for particular knowledge in specific fields included disciplines such as biochemistry, physiology, pharmacology and a wide spectrum of fields in medicine.

Excursions into social medicine were manifest in the presentation of major symposia. In addition to these, an extensive series of conferences, weekly or bi-weekly, by way of two-way radio, reached more than 50 hospitals over a state-wide distribution, and these radio programs are gradually extending into neighboring states.

Under the direction of Dean Seymour Farber, the staff of Continuing Education has worked with many groups in providing organized courses. To be mentioned are the American Academy of General Practice, American College of Physicians, American College of Surgeons, American Thoracic Society, Association of American Medical Colleges, California Association of Laboratory Technologists, California Department of Public Health, California Medical Association, Dermatologic Research Foundation of California, Inc., Federal Aviation Agency, Heart Association of the Redwood Empire, Monterey Heart Association, National Foundation, Physical Therapists Association, Society of Comparative Endocrinology, United Cerebral Palsy Association of San Francisco, The West Coast Conference of Anesthesia Residents, among others.

During the year numerous personal meetings and discussions were held by the staff of the Continuing Education program with members of other universities and medical schools and with directors of educational programs of many societies and hospitals, and with staff members of the continuing education programs of the California Medical Association and the American Medical Association.

During 1963-64, courses were presented at Agnew State Hospital, Childrens Hospital of San Francisco, Franklin Hospital, Herrick Memorial Hospital, Mercy Hospital (Sacramento), Mt. Zion Hospital, Napa State Hospital, Peninsula Hospital, Sonoma State Hospital and Stockton State Hospital.

It is noteworthy that some of the major symposia—Man Under Stress; The Family's Search for Survival; The Uncertain Quest; Teenagers' World; and Food and Civilization—presented under the auspices of Continuing Education were taped and broadcast; the local audience for these symposia was estimated at approximately 200,000. Besides being presented on live television, the Voice of America and FM radio, various of the symposia were made available in the form of audio-digest material: A number of books have been published on the basis of symposia presented, and others are in press.

Many techniques are in use, either as established methods or as experimental devices for investigation of improved mechanisms of communication. Among these are two-way radio broadcasting, and the use of television tapes, including the newly devised relatively inexpensive projectors with circulating audio-visual tapes, for home use. The use of programmed courses, as a method of continuing education at the postdoctoral level, is under consideration. Mention must be made of the potential of television broadcasts of lectures, grand rounds, seminars and symposia within the community itself. Currently a television transmitter is being installed

on the Medical Center campus which will (with a multi-directional radius) reach the hospitals in the community and will be an effective extension of the local educational programs. Mention must also be made of the use of the self-audit systems, the use of computers (particularly in the programming of diagnostic possibilities) and further presentation of courses for bedside teaching, including a thoughtful scrutiny of the mechanisms whereby medical schools may be able to accommodate physicians who wish to return for a kind of sabbatical leave in residence for periods of six months or a year for the purpose of intensive training. We have not yet devised an effective solution to this problem, except in certain areas (for example, psychiatry).

Over and above the offering of courses, is the problem of deleting inadequate stereotypes, of devising more effective kinds of programming, and utilization of the emerging group of individuals who are experienced in medical education or research in medical education, for the purpose of suggesting new ways and means of promoting active teaching and learning.

The financing of courses in continuing education by all concerned agencies (including the medical schools) has, to date, necessarily been on ad hoc basis. But it is inevitable that the economies and fiscal benefits to be derived by the nation as a whole from the maintenance of a healthy population will place increasing emphasis on the necessity for the assumption of responsibility (by organized medicine, by medical schools and by various local and national agencies) for the sponsorship and funding of the types of evolving continuing education activities which will become necessary. It is interesting to note that there is a perceptible swing in the fiscal pendulum: The ascertainable trend is now away from the extensive funding of research in schools of medicine to a more rational program for support of training for teaching and learning.

It is predictable that, within the near future, systems and methods of accreditation of courses and programs will be activated. It is important that the medical profession assume the responsibility for continuing certification, for self-examination and for self policing in the maintenance and improvement of standards of professional care. It is incidentally worth emphasizing, from the medico-legal point of view, that definition of standards of medical care is changing. At one time, the standard of professional care requisite in any particular case was that of the community in which the individual practiced. It is now apparent that the legal definition of "community" will gradually be broadened to a regional, state or even nationwide scope, largely as a consequence of the evident and recognized requirement for continuing education.

If accreditation of postgraduate courses is eventually attained, and if a form of accreditation for continuing licensure is engaged in by medical societies, it is inevitable that the demand for continuing courses will skyrocket. We must now plan for this certain eventuality. Such planning will require the closest cooperation of all concerned agencies.

It would be unfortunate for the development of continuing education if the impression were gained that the medical schools are at fault in the proliferation of courses, the overuse of faculty members and possibly for the dilution of the quality of courses. It should be pointed out that participation in continuing education courses is voluntary on the part of all faculty members and speakers. But it may also be true that certain speakers or faculty members who are most facile and stimulating in their areas of presentation, may accept undue responsibilities.

During 1959 and 1960, an average of 83 physicians attended each of 131 medical school courses; in 1962-63 the average attendance was 81 in 179 courses offered. This is hardly evidence that the additional courses offered did not meet a demand. It is noteworthy also that the number of physicians acting as faculty or speakers in single courses has remained fairly constant.

The medical school sponsored and the California Medical Association-Medical School sponsored courses averaged 44 hours in length, as contrasted with averages of 11 hours for specialty societies, eight hours for voluntary health agencies, eight hours for county societies, and 14 hours for hospitals. Clearly there is a difference in the intensity and breadth of course offerings.

Coordination of programming and course offerings in continuing education in medicine should originate within the profession. The plan of the California Medical Association and its Committee on Continuing Medical Education to facilitate scheduling and coordination of course offerings within local areas is an initial step; the medical schools should be willing to offer their services and cooperation in such an endeavor. We are *all* interested in creating and maintaining an excellent system of offerings for postgraduate education and we *must* cooperate, in reaching the ends of adequacy in number and kinds of courses, as well as excellence in quality. Every device for promoting cooperation and mutual assistance will be of importance in this forward-moving, rapidly expanding program. In fact, it is evident that what has been done in the past may be barely adequate to provide a rational pattern for the needs of the future. It is, indeed, time to take stock.

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The Battered Child Syndrome

Responsibilities of the Pathologist

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■ *A pathologist working in a medical examiner's or coroner's office dealing with the syndrome of the battered child is responsible for performing a complete external examination of the body with careful detailed description of all injuries, supplemented by roentgenograms of the entire skeleton, taken before the autopsy, to determine the existence of old or recent bone injury. The complete autopsy with microscopic studies must include the dissection and microscopic study of the osseous lesions.*

All findings possibly related to trauma are recorded in diagrams and photographs in color. The pathologist's findings and police reports dealing with the circumstances of the injuries and death must be evaluated with utmost care to determine whether inconsistencies exist in their statements as to the time and the nature of the events associated with the injuries. When confronted with the findings, suspects frequently confess.

THE GENERALLY increasing awareness on the part of the physician and the public at large of the problem of the abused child, as attested by the attention being given to the subject in medical journals, popular magazines and television programs, is such that efforts are now being made in many states to develop protective legislation. This movement is currently being spearheaded by the Division of Welfare Administration of the Chil-

dren's Bureau of the Department of Health, Education and Welfare which has recently prepared and published a brochure embodying a statement of principles and suggested language for state legislation on reporting of the physically abused child,² commonly known as "the battered child."

California can be credited with priority in such legislation, mandatory reporting by physicians and hospitals having been in force for many years in this state. Parenthetically, however, it must be stated that despite these long-standing legal provisions in our state, many physicians in the past have neglected to report such cases, either from ignorance of the

From the office of the Medical Examiner-Coroner, county of Los Angeles.

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law, from mistaken notions of the physician-patient relationship or from a reluctance to become involved with the various governmental agencies charged with the responsibility of enforcing the law.

Here is the actual wording of the law in the state:

"11161.5. [Same: Physician's or surgeon's report as to child victim of willful cruelty.]

"In any case, in which a minor is brought to a physician and surgeon for diagnosis or treatment, or is under his charge or care, and it appears to the physician and surgeon from observation of the minor that the minor may have been a victim of a violation of Section 273a, he shall report such fact by telephone and in writing to the head of the police department of the city or city and county, if the observation is made in a city or city and county, or to the sheriff, if the observation is made in unincorporated territory, or to the nearest child welfare agency offering child protective services. The report shall state, if known, the name of the minor, his whereabouts and the character and extent of the injuries.

"The physician and surgeon shall not be required to report as provided herein if in his opinion it would not be consistent with the health, care, or treatment of the minor. [Added by Stats. 1963, ch. 576, #1.]"

In connection with the legal responsibilities of the physician, it should be emphasized that in reporting a case to the appropriate authority he is not called upon to identify anyone—the mother, the father or anyone else—as being the person responsible for the injuries found. He is, however, required to use reasonable judgment in determining that the injuries observed are not reasonably explained as having happened accidentally. He is not expected to make any outside independent investigation; his duty in reporting a case, based on reasonable suspicion stemming from his professional experience and expert opinion, is simply to set in motion the investigative machinery which may or may not result in action by the law enforcement agencies.

The responsibility of the pathologist in fatal cases is somewhat different. For one thing, while the reporting physician starts the investigative machinery, it is the responsibility of the pathologist to see that the gears mesh, with the resultant collection of evidence that will provide an opinion as to the probability of guilt or innocence of the suspect or suspects in a given case.

The pathologist must include in his consideration all the pertinent available information gleaned from the attending physician and from hospital records, with special emphasis on the past medical history

of the child. He must be alert for indications of possible previous instances of physical abuse that are better interpreted in hindsight of the pathologist than they might have been by the clinician with a low index of suspicion.

This medical evidence must be supplemented by an adequate police investigation of the circumstances surrounding the death, with special emphasis in documenting in detail any history of recent physical injury, how it was produced and, above all, the time the injury occurred. (The involved parties invariably ascribe it to an accidental event in their initial questioning by the police.) The prime need for this information is obvious, for it is this added dimension of time or age of injury that distinguishes the medico-legal autopsy from that of the hospital autopsy.

After all available information is reviewed, the pathologist is ready to proceed with the autopsy, with certain modifications to suit the nature of the case. The prime modification is to obtain a complete x-ray study of the skeletal system. Without this, and failing the observation of trauma to those bones that can be visualized in the routine autopsy, he will in many instances miss the most vital evidence in the case. Evidence of this kind may corroborate the suspicion of the reporting physician and the police investigator.

Following the x-ray study, autopsy proceeds in the routine fashion with special attention being paid to a documentation of any external evidence of injury as to nature, location, size and pattern. This examination is best supplemented by color photographs of the lesions for later study and presentation in court if necessary.

Another important feature of the external examination is to look for any local swelling of a part, especially if it overlies a bony structure, and to incise the swelling for visual inspection of the bone and overlying soft tissue. Unless the injury caused gross fractures, dislocations or epiphyseal separations no signs of actual injury to bone are to be found during the first week after a specific injury,¹ but regional swelling consequent to inflammatory reaction is frequently evident if carefully sought for on external examination.

It must be remembered also that the skin of persons of the dark complexioned races often will not show the effect of blunt force if the skin is not abraded or incised. Evidence of injury can often be found, however, if the subcutaneous fat is repeatedly incised in such areas as the anterior abdominal wall and the thorax—areas that are not likely to show local swelling.

In gathering material for microscopic study, the pathologist should be sure to obtain sections from lacerations and contusions, as well as from areas

of hemorrhage regional to periosteal or bone injury, also from bone callus at the line of fracture or from areas of periosteal injury. While we do not yet have accurate guides as to the age of these healing injuries, nevertheless such a study frequently provides information of such a nature as to test the credibility of statements made by the suspects as to the time the injury occurred. If there is wide discrepancy between the time the injury is reported to have occurred and the estimated age of the lesion, the guilty person when confronted with the inconsistency will often confess.

Reports of Cases

The following cases are illustrative of the problem of the battered child syndrome:

CASE 1. A 17-month-old boy was admitted to hospital with third degree burns of the head, torso and extremities. Anuria and septicemia developed and the child died in one week.

The father explained to the police that the child had turned on the drain valve of the hot water heater and scalded himself. When investigating officers noted that there was no handle on the valve, the father said the child had fallen into the bathtub; and when police pointed out there was no bathtub in the house, he said the child had crawled into the shower and turned on the hot water. It was obvious that the child could not have reached the shower handle, and the father was convicted of second degree murder.

CASE 2. The police were called to investigate the death of a three-week-old Negro girl. The father said that the child had started to cry just after midnight, that he had picked her up and that she slipped from his arm while he was attempting to warm her bottle. He caught the baby by the neck and head with his right hand and heard a cracking sound. Then he gave the baby the bottle and replaced her in the bassinet. When he next observed her at about 6 a.m., she was dead. Investigators at the scene noted no visible injuries. At autopsy, an external examination showed no visible injuries except for a deformity of the left thigh at the mid-third, with pronounced swelling. The subcutaneous tissues were normal. X-ray and dissection of the deformed left thigh showed displaced fracture ends and soft fusiform callus. Fractures of the right third rib and left first rib with hard callus formation were also noted. The anterior aspect of the entire cervical spine was observed to be hemorrhagic, and there was recent fracture-dislocation between the second and third cervical vertebrae. Also noted was a recent fracture separation between the second and third thoracic vertebrae with extensive interstitial hemorrhage.

Armed with the autopsy findings, the investigators again questioned the father, who eventually confessed that he had repeatedly beaten the baby because she cried continuously. On the day of her death, he had squeezed and twisted the child's neck and had heard a snapping sound.

CASE 3. A ten-months-old boy was brought to the hospital by a man and a woman and was pronounced dead. They said that the child had fallen from the crib 30 minutes previously and had ceased breathing. External marks of injury were explained to the police as being the result of frequent falls while learning to walk.

Autopsy revealed massive traumatic laceration of the liver and right adrenal with intraperitoneal hemorrhage.

Police investigation elicited that the couple was operating an unlicensed foster home. As many as 17 children of various ages were kept in a three bedroom home. At the coroner's inquest, conflicting accounts of the fatal episode and evidences of frequent abuse of the children by the husband resulted in the couple's arrest. Examination of the remaining children in the home revealed one had a fractured skull.

The man later confessed that he had squeezed the child during a fit of anger when the child cried excessively.

CASE 4. A four-year-old child was reported dead on arrival at the emergency room of a local hospital.

External examination showed obvious evidence of emaciation and soft tissue injuries of various ages. Initial investigation by police indicated that the child had been abused and neglected by "irresponsible" parents.

Autopsy confirmed the soft tissue injuries, but it also revealed hydrocephalus. Further police investigation elicited that the child was retarded in development, ate poorly, was unable to talk and had difficulty walking, falling frequently.

Careful evaluation of all evidences exonerated the parents from any criminal responsibility for the child's death.

The contribution of the pathologist to the problem of the abused child hinges on his awareness of the problem and the consequent procedural pattern he follows in his autopsy study, complemented by the information that results from the medical and police investigation of the case.

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Dysphonia

Due to Unilateral Nerve Paralysis

Treatment by the Intracordal Injection of Synthetics— A Preliminary Report

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■ *The injection treatment of unilateral recurrent vocal cord nerve paralysis, successfully performed 40 years ago with paraffin, has recently been reintroduced with non-reactive synthetics. Improvement in the voice far and above that which can be achieved by voice therapy or any practicable surgical procedure has been demonstrated by several investigators. The technique is relatively simple, and there are no significant untoward reactions. Judging from experimental and clinical studies with these inert materials when introduced into other parts of the body, adverse long range effects are not likely to occur in the larynx.*

Eleven of 12 patients treated by injection of silicone or Teflon paste had substantial improvement in vocal quality and strength. Silicone was absorbed slowly from the injection site and the improvement was not enduring; when Teflon was used, it stayed at the site and the improvement was sustained.

IMMOBILIZATION of one vocal cord by interruption of its motor nerve supply has a variable effect on the voice. Depending upon the rapidity of onset, upon the length of time the paralysis has been present, and most particularly upon the ultimate position taken by the affected cord, the vocal spectrum may range from a coarse whisper at one end through all degrees of hoarseness to normal at the other.

Should restoration of function not occur, the paralyzed cord eventually comes permanently to rest in one of three positions—median, paramedian or intermediate. In the median position (Figure 1) the paralyzed cord is in the midline, and, upon adduction of the normal cord, a normal phonatory position is assumed. In this situation the voice may

be nearly or completely normal. There is usually, however, although not invariably, some restriction of range and disturbance of the singing voice.

In the paramedian position (Figure 1) the paralyzed vocal cord does not reach the midline and the cords cannot make firm contact in phonation unless there is compensatory overshift of the functioning arytenoid cartilage. Because of the abnormal phonatory position, there is invariably some associated vocal aberration.

In the intermediate position (Figure 1) pronounced lateral shift of the paralyzed cord produces an excessively wide intercordal space in phonation, and the voice suffers severely.

Dysphonia associated with the paramedian and intermediate positions is due essentially to inadequate glottal closure but may be aggravated by atrophy of the paralyzed cord which further widens the glottal aperture. The causes of recurrent nerve palsy and the factors responsible for the position

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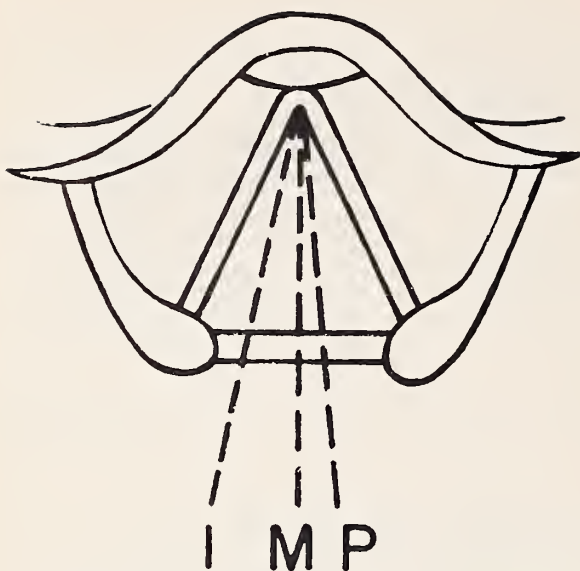


Figure 1.—Diagrammatic representation of cordal positions assumed in unilateral recurrent nerve paralysis. I=intermediate; M=median; P=paramedian.

assumed by a paralyzed cord are not germane to this report.

General Considerations of Treatment

Since spontaneous vocal compensation often occurs where the paralyzed vocal cord assumes the median position, no treatment, or at the most supportive vocal exercises, should be contemplated before elapse of at least six months. Beyond six months whatever vocal disturbance exists may be permanent, and definitive therapy should be instituted. Until recently this consisted solely of vocal rehabilitative measures encompassed by the general term *voice therapy*. Where dysphonia is mild, improvement is often achieved by developing compensatory action of normally functioning laryngeal muscles, and nothing further may be required. All too often, however, the hiatus between the vocal cords in phonation is beyond closure by even the most efficient muscular effort.

Various surgical procedures to narrow this excessive intercordal space have proved unsatisfactory for one reason or another. These have included thyroid cartilage implant,^{13,15} rib cartilage implant,¹¹ bone implant,^{17,18} the reverse King operation,¹² and thyroid cartilage alectomy.⁸

Brünings⁶ (1911) reported a technique of injecting paraffin into a paralyzed vocal cord in order to increase its bulk and, by so doing, bring it to the median position. Functional results were excellent, and the method was for a time well received. When late complications appeared following injection of paraffin for cosmetic purposes in other parts of the body, the use of paraffin in the larynx was discon-

tinued even though no adverse effects had been recorded.

The potential of the injection method, however, was demonstrated, and a number of substances were subsequently utilized and then abandoned either because of technical difficulties inherent in their use or because of doubtful long range effectiveness. Among these were petroleum jelly,¹⁶ acrylic resin,¹⁰ autogenous and homogenous cartilage particles,^{1,2} and heterogenous bovine bone dust.^{7,14}

Arnold,^{3,4} corroborated by Lewy,⁹ reported the successful use of tantalum powder and Teflon®* suspension. Powdered Teflon in glycerine has proved easier to administer and is preferred. To Arnold belongs the credit for reintroducing the injection method and establishing it as a practicable procedure.

Synthetic Materials

The use of synthetic polymers in medicine has been greatly extended within recent years because of the development of substances which combine ease of handling with high tissue tolerance.

Teflon is a polymer of tetrafluoroethylene (Du pont Company). It has been successfully utilized in various parts of the body as a prosthetic. Teflon suspension, prepared by mixing powdered Teflon of 50-100 micra particle size with 50 per cent glycerine, is a paste which, because of its thick consistency can only be injected through a special syringe.

Silicone. The silicones (Dow-Corning Company) comprise a large family, including fluids of many viscosities, rubbers and resins, with wide medical applicability. As a fluid, silicone may be injected through an ordinary syringe.

Present Study

A total of 12 patients (seven men and five women) with unilateral recurrent vocal cord nerve paralysis due to a variety of causes, and with accompanying dysphonia existing longer than six months, were treated by injection into the paralyzed vocal cord of Teflon or Silicone or both. Injections were made either by direct or indirect laryngoscopy and were repeated, for reasons described below, when necessary. Tape recordings of the voice and, where possible, high-speed photographic films of the larynx were made before injection and at varying intervals subsequently.

Selection of Patients

While it might be expected that any patient with dysphonia due to unilateral recurrent nerve palsy is a candidate for treatment by injection, a certain selectivity must be exercised.

* A polymer of tetrafluoroethylene.

1. It is again stressed that at least six months must elapse before anything more definitive than voice therapy is undertaken.

2. Life expectancy and state of general health should be reasonable. To improve the voice of a patient in near terminal state from pulmonary carcinoma constitutes no more than a technical exercise.

3. The patient should have strong motivation and request the procedure rather than having it urged upon him.

4. Where the appearance of the vocal cords is inconsistent with the degree of dysphonia, psychogenic factors should be suspected and evaluated.

5. If the arytenoid cartilage of the paralyzed cord is so laterally situated as to create an excessively wide posterior commissure during phonation, a cautious attitude should be assumed because it may be impossible to achieve sufficient closure of this region to eliminate or even reduce extreme breathiness.

Instrumentarium

The synthetic materials were injected in some instances through a slotted anterior commissure laryngoscope and in others indirectly by mirror guidance. Teflon suspension was necessarily delivered through a Brünings syringe (Figure 2) because the thick Teflon paste cannot pass through ordinary syringes. Silicone was injected similarly in viscosities 360, 1000, and 4000 centistokes with a 2 ml syringe of luer-lok type.

General Procedure

Before the injection, the voice should be recorded on a high-fidelity tape recorder. This step is as mandatory as taking photographs before rhinoplasty or testing the hearing before tympanoplasty. Recollection of the voice as it was before having been altered is uncertain, and a patient may not fully appreciate subtle improvement unless he has means of objective comparison. While special tests such as measurement of phonation time, sonographic analysis and recording of vocal range in terms of musical notations are important, the esthetic quality of the voice as it is appreciated by the human ear is in the last analysis the sole criterion for evaluating the benefits of treatment. For this reason reproduction of the voice by recorder should be faithful. Most tape recorders are packaged with microphones which do not reproduce phase and amplitude conditions uniformly over a wide frequency range, and the voice may assume a softer and more pleasing quality than it actually possesses. A high fidelity microphone of the cardioid dynamic type with a uniform frequency response from 40 to 15,000 cycles per second should be substituted.



Figure 2.—Brunings' syringe with straight and curved needles for injection of Teflon paste.

Care must be exercised to record that part of the voice which has been specifically disturbed by the paralysis or the real nature of the vocal impairment may be overlooked. For example, the voice in unilateral palsy may be quite normal in ordinary conversation, breathiness and inability to project and sustain a tone appearing only when increased demands are made upon it as in conversing in a group or calling out. The recording should therefore include phonation at loud intensity.

High-speed photographs (4000 frames per second) are made before and after injection in photographically suitable subjects to ascertain the effects of injection cordal behavior.

The exact course to be followed from this point is flexible, varying with the inclination of the physician and the disposition of the patient. Initially the author followed Arnold's suggestion of injecting the paralyzed cord with gelatin solution (My-B-Den[®], Ames Company) to acquire familiarity with the particular larynx and to give the patient an opportunity to "preview" his voice. The gelatin and attendant inflammatory reaction absorbed within a week; and return of the voice to its former state had the effect of quickening the patient's desire to have the procedure repeated and made permanent. Injecting the vocal cord with normal saline solution often has the same although a very short-lived effect. After we acquired technical facility and confidence in the effectiveness of the procedure, these preliminaries were dispensed with and a synthetic material is now injected at once.

Initially all treatment was administered in the hospital but at present injections by indirect laryngoscopy are performed in the office. Wherever possible the latter procedure is preferred because indirect laryngoscopy is associated with less discomfort to the patient, and changes which occur in the configuration of the paralyzed cord during injection seem to stand out more clearly. Since there have been no significant reactions or complications, the patient is allowed to return home about an hour after treatment. Often the voice is improved immediately, but sometimes there is some delay and final estimation of the result should not be made before from one to three weeks.

Details of Technique

The pharynx and larynx are anesthetized with a 0.5 per cent solution of pontocaine. When the injection is done directly, the larynx is exposed with a slotted anterior commissure laryngoscope which may be supported manually or by a self-retaining holder. If injection is made indirectly, the tongue is held by an assistant, and the curved needle is passed into the larynx under mirror guidance.

The first and often only injection is made in the lateral aspect of the thyroartoid muscle, as shown in Figure 3, and at the point of maximum bowing which is usually in the middle of the membranous portion of the cord (Figure 4). Usually



Figure 3.—Frontal section of human larynx with needle in proper position for deposition of synthetic material.

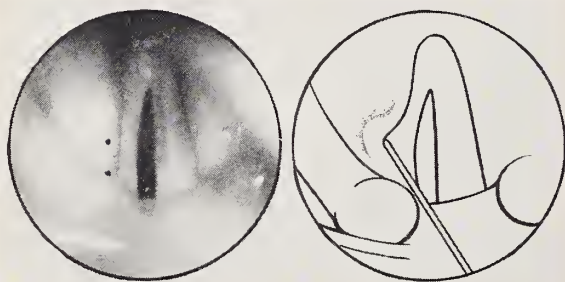


Figure 4.—Direct laryngoscopic or mirror view of larynx with dots at preferable site of injection. Diagram demonstrates manner in which the ventricular band is displaced by the advancing needle for lateral deposition of synthetic material.

the ventricular band must be moved aside by the advancing needle to allow sufficiently lateral access to the cord. The quantity instilled depends upon the extent to which the cord has been displaced by the paralysis. From 0.1 ml to 0.3 ml may have to be deposited to bring it to the midline. The first injection may not secure optimal closure, and a second should then be made, generally lateral and posterior to the tip of the vocal process.

Injections must be placed well away from the vocal margin in order to interfere minimally with intrinsic cordal elasticity while effecting an en masse shift of the cord to the median position. Injection close to the vocal ligament produces a localized fullness which may act similarly to inflammatory infiltration and prevent free cordal oscillation.

Attempts to close the posterior third or intercartilaginous cleft by injecting between the mucous membrane and arytenoid cartilage are futile. The epithelium here is tightly adherent and material delivered under pressure simply extrudes back along the needle. Since the posterior commissure is not usually tightly approximated during phonation, its closure is unnecessary. Rarely the arytenoid cartilage has undergone such extreme lateral displacement that air escapes through the abnormally patent posterior commissure as in an aphonic whisper, despite good approximation of the muscular portion of the cord, and the voice is not improved. The anterior third of the cord need not be injected unless there is decided atrophy and bowing at this point, for it will be brought into proper phonatory position by injection of the middle third.

Comparison of Teflon and Silicone

Both Teflon and Silicone are so well tolerated by tissue that there should presumably be little to choose between them. Such, however, is not the case. Over the course of several months it became apparent that Silicone was slowly absorbed from the sites of injection while Teflon was not. In an effort to delay or halt dissipation of Silicone, it was injected (into the same patients) in ever-increasing viscosities but to no avail. Silicone in any viscosity does not appear to remain in the paralyzed vocal cord in significant amounts beyond three to four months.

Teflon, however, does not seem to be absorbed. Histologic studies on dogs reveal that the Teflon particles are entrapped by a histiocytic reaction which fixes them at the injection site.

Results

In 11 of 12 patients treated by injection, there was substantial improvement in both vocal quality and strength either immediately or within two

weeks. This improvement was sometimes dramatic, the voice being transformed immediately following injection from a coarse whisper to one passably near normal. No change was observed in one virtually aphonic 25-year-old man despite the injection of 0.3 ml of Teflon into the muscular portion of the paralyzed cord because extraordinary lateral shift of the displaced arytenoid cartilage allowed so much air to escape through the posterior commissure that the cords could not be thrown into regular oscillation.

When Silicone was used, the improvement did not last more than one to three months, and subsequent injections of more viscous Silicone only extended the period of temporary improvement. This is a great advantage where a permanent implant such as Teflon cannot be introduced until it is definite that the paralysis is more than temporary. Silicon, meanwhile, restores the voice during that period after onset of paralysis when vocal disturbance is most severe. If neural function returns, nothing is lost, for the silicone absorbs. If paralysis is permanent, Teflon can then be injected. Where Teflon in glycerine was injected either alone or following Silicone, vocal improvement and maintenance of the paralyzed cord in the midline persisted. At this writing the longest period following the injection of Teflon has been seven months.

Complications

In one patient moderate reactive edema of the arytenoid and aryepiglottic fold occurred several hours after injection with Teflon-glycerine and persisted for about 48 hours. This was associated with local discomfort and mild stridor on deep inspiration and possibly represented reaction to the glycerine in the Teflon suspension. Aside from temporary soreness of the throat no other side effects were observed.

High-Speed Photographic Observations

A vocal cord immobilized by recurrent nerve palsy is rendered incapable of active contractile movements but not of passive response to glottal air flow. When in the median position it oscillates in phonation at a frequency determined by the normal cord, and vibratory excursions of both cords may so closely approximate normal as to render the two indistinguishable. In the paramedian and intermediate positions, however, the vibratory pattern is always aberrant, the most noticeable disturbances being a variety of phasic shifts, inability of the paralyzed vocal cord to effect efficient glottal closure in loud phonation, and occasional totally irregular movements of the paralyzed cord.

Following injection, the vocal cord is usually immobilized by reaction for from one to two weeks. As ability to oscillate freely returns, the most noticeable changes during phonation are a longer period of contact between the vocal cords during each oscillatory cycle and elimination of the irregular or chaotic movements of the paralyzed cord. Most surprising is absence of any permanent stiffening effect of the synthetics on cordal action, both the normal and palsied appearing indistinguishable during actual phonation. In respiration permanent shifting of a previously laterally situated cord to the midline is observable by mirror.

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Teflon was supplied by Ethicon, Inc. and Silicone by Dow-Corning.

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PANCREATIC DISEASE

In Infancy and Childhood

—Surgical Implications

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■ *Surgeons whose practice involves many infants and children should be acquainted with all abnormalities of pancreatic malformation and function. Conditions amenable to surgical treatment are few, but serious.*

Trauma to the pancreas in childhood is most commonly diagnosed by fever, leukocytosis, rectus spasm and elevated serum amylase. Drainage of the lesser sac and debridement of devitalized tissue may prevent the sequelae of pseudocyst formation which seems to follow the untreated injury. True congenital cysts are characterized by an epithelial lining.

Mucoviscidosis complicated by meconium ileus remains a challenging disease of the newborn that requires early operation. Ten per cent of infants with cystic fibrosis may be threatened by intestinal obstruction from this cause. Some children surviving the newborn period go on to develop obstruction later.

Annular malformation of pancreas may produce upper intestinal (duodenal) obstructive symptoms immediately after birth. Surgical correction by duodenojejunostomy should be postponed only long enough to correct severe fluid or electrolyte imbalances.

Idiopathic spontaneous hypoglycemia has the most serious prognosis if convulsions are allowed to recur. Increased metabolic rates in infants increase the need for control of blood sugar levels by either administration of cortisone or pancreatic resection. If adenoma is the cause, a conservative resection of the tumor suffices. If serial frozen section fails to reveal either tumor or hypertrophy of insulin-producing cells, blind pancreatectomy may be indicated, for irreversible brain damage develops early in uncontrolled hypoglycemia.

FOR PRACTICAL PURPOSES, the abnormalities of pancreatic formation and function in infancy and childhood that may necessitate surgical treatment are of four categories: pseudocysts, meconium ileus, annular pancreas and hypoglycemia due to adenoma. The first of these has been found to result from external trauma, but the remainder follow inborn errors of development. Certain other conditions, especially new growths, are rare in this age group.

Childhood Pancreatic Cysts

Up to 1956 only seven cases of pancreatic pseudocyst in childhood had been reported.^{13,14,18} Two additional cases are presented herein. In contrast to adults in whom predisposing pancreatitis is frequent, children usually have a history of injury to the abdomen. Two of the patients in the cases previously reported were run over by a wagon, another was struck by a truck, one was injured in a severe fall and three received severe blows to the abdomen in bicycle crashes. Characteristically the "cyst" developed in days to weeks after blunt trauma to the abdomen.

The events leading to formation of a pseudocyst in such circumstances start with release of enzymes from the injured pancreatic tissue into the lesser omental sac or between the leaves of the mesocolon. Autolysis and necrosis of these peripancreatic tissues ensues, and then chemical peritonitis develops. The resulting liquefied material is trapped by both organs adjacent to the pancreas and by granulation tissues. As leakage of enzymes and further liquefaction of tissue continues, the intense inflammatory reaction incites proliferation of fibrous tissue, which forms the major portion of the cyst wall (Figure 1). If pressure of the enlarging mass is sufficient, penetration of stomach or intestinal wall may occur. In other instances the mass merely displaces viscera, frequently interfering with normal function. Because of its proximity to the pancreas, the greater curvature of the stomach is commonly indented.

Reports of Cases

CASE 1. A three-year-old boy was run over by a bicycle. Three weeks later vomiting and low-grade fever developed. On physical examination the child was pale and listless. A mass about 6 cm in diameter was palpated in the left upper quadrant of the abdomen. An upper intestinal roentgenogram demonstrated indentation of the greater curvature of the stomach and displacement of small intestine (Figure 2).

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At laparotomy a firm mass to which omentum adhered was observed in the lesser sac. The mass arose from the tail of the pancreas, incorporated part of the stomach wall. Irregular in shape, it was 5 by 8 by 10 cm. Removing it necessitated transecting the splenic artery and the tail of the pancreas. The spleen was removed with the cyst, and the pancreas was closed with mattress sutures. The patient recovered without incident.

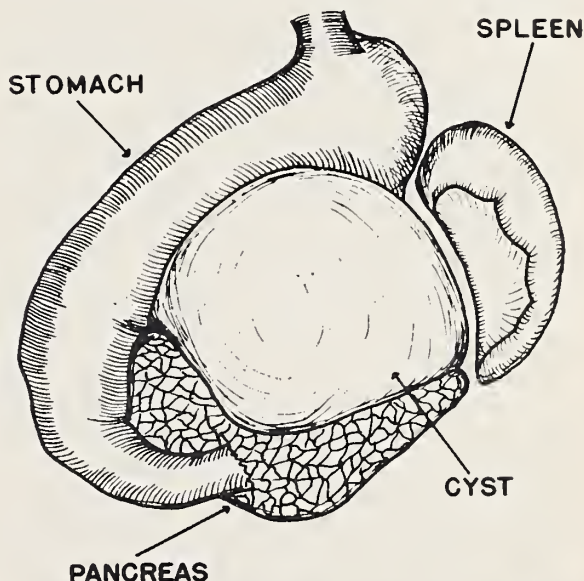


Figure 1.—Drawing of pseudocyst of pancreas.



Figure 2.—Gastrointestinal displacement due to pancreatic pseudocyst.

Microscopic section of the cyst wall revealed dense connective tissue, within which were islands of pancreatic acini and isolated islets of Langerhans. In no portion was there any epithelial or mesothelial lining.

CASE 2. A ten-year-old boy rode a bicycle off an eight-foot embankment, landing flat on his abdomen over a projecting curb. Severe vomiting soon necessitated hospitalization. Roentgenograms of the abdomen were reported showing no abnormality, and the patient was discharged. Twelve days later generalized abdominal pain developed and he was again put in hospital. Paracentesis was done in all quadrants of the abdomen and 300 ml of fluid was taken from the upper left area. Exploratory laparotomy revealed only hemoperitoneum, and thereafter the patient remained asymptomatic for three months. He then had recurrence of abdominal pain, with vomiting, malaise and low-grade fever. On examination a mass was felt in the left upper quadrant. Laparotomy revealed a large, firm cystic mass in the lesser omental sac. The stomach was stretched over this mass, from which two liters of clear liquid was aspirated. The cyst was opened and marsupialized to the abdominal wall. Drainage continued for six months.

Microscopic sections from the wall of the cyst showed hyalinized, edematous fibrous tissue with numerous fibroblasts, round cells and plasma cells. Absence of any epithelial lining was noted.

The treatment of pancreatic pseudocysts is classically by simple drainage, internal drainage, marsupialization, resection or excision. Marsupialization, devised by Guzenbower in 1882, probably has no place today in treatment of pseudocysts in children. Simple drainage is indicated for occasional cysts which, because of huge size, cannot be excised safely. However, secondary fistula formation is a common sequela. Anastomosis of the cyst to intestine has proven feasible in many adults, and that method of internal drainage should be utilized more often in children. Experimentally this kind of management has given a lower incidence of complication.²² Simple excision of either the cyst or the cyst and tail of pancreas, as in the first case herein reported, has proven feasible in four of the seven previous cases. This method greatly decreases the stay in hospital.

Mucoviscidosis With Meconium Ileus

Mucoviscidosis, a disease of secreting glands, is characterized by abnormally viscid secretions, of which pancreatic insufficiency is but one feature. The involvement may include also lungs, liver, sweat glands and salivary glands. di Sant'Agnese⁶ developed a thermal test for the disease, in which

a positive result is demonstrated by a two to four-fold increase in the sodium and chloride content of the sweat. Various other examinations include analysis of duodenal fluid for enzymatic activity, roentgenographic observations of lung fields, liver function tests and the mucoprotein content of meconium. Positive results from such examinations vary with those manifestations of the disease which predominate in any given child. For example, focal biliary fibrosis, resulting from viscid plugs in biliary canaliculi, may progress to complete hepatic parenchymal scarring, with attendant portal hypertension.

Meconium ileus is another manifestation of this generalized disease. It is estimated that perhaps 10 per cent of infants born with generalized mucoviscidosis begin life with a small intestine obstructed by inspissated meconium of abnormal composition. Survival in such cases was unknown until 1948 when Hiatt and Wilson¹¹ reported the early survival of five of eight patients operated upon. (All of them died subsequently of pulmonary complications.) Schwachman²³ reported a ten-year experience with meconium ileus, which included 61 patients operated upon, 25 of whom could be surgically relieved of obstruction and 17 of whom survived. Gross⁸ reported a 79 per cent survival rate, many of his cases being those included in the preceding report.

Diagnosis of meconium ileus involves early differentiation from such other causes of obstruction as atresia, duplication and volvulus. Characteristic changes in the flat and upright roentgenograms as described by Neuhauser²⁰ consist of dilated loops of bowel filled with gas and fluid (with a considerable variation in the size of the loops) and the presence of minute bubbles of gas in the inspissated meconium. Palpation of the abdomen reveals the presence of rubbery loops of dilated intestine, especially in either of the lower quadrants, which characteristically pit under pressure. Presumptive diagnosis in the distressed newborn infant can be then established by study of the volume, viscosity and enzymatic activity of the duodenal content, and by measurement of the sweat electrolytes following thermal stress.

Early diagnosis and expeditious surgical treatment in these cases will improve immediate survival rates. Long-term survival requires close cooperation between surgeon and pediatrician, for other manifestations of the generalized deficiency may appear once the crisis of the intestinal obstruction has been overcome. Based upon the comprehensive experience of published reports, use of the double-barreled ileocolostomy would appear to be the operation of choice. In my experience this procedure has been associated with devastating fluid and electrolyte imbalances to the point that, to me, the following procedure seems more expeditious.

When preoperative fluid and electrolyte levels have been returned toward normal, exploration of the abdomen is effected through a long pararectus incision. Once the diagnosis has been confirmed, an opening is made into the ileum just distal to the lowest point of dilatation. Packing is placed to keep the rest of the viscera out of the way. A suitably pliable catheter is introduced proximally into the ileum, and irrigations of 20 per cent acetyl-cysteine mixed with 1 per cent hydrogen peroxide are flushed through it.¹⁷ Should complete removal of meconium prove impossible, resection of the remaining inspissated small bowel is carried out. Care is taken to remove no more of the bowel than is absolutely necessary. Where the resection does have to be done an internal ileocolostomy (or ileoileostomy) is performed in the hope of minimizing further fluid and electrolyte depletion and to promote reabsorption of intestinal content. If desired, a decompression catheter may be left in place proximal to the anastomosis. This tube can be utilized also for postoperative irrigations.

After such repair, continuous medical supervision is needed. Prevention of pulmonary infection, management of liver failure and improvement of nutrition are essentially the province of family physician or the pediatrician. Therapy must be directed toward removal of thick tracheobronchial secretions by use of bronchodilators, expectorants, oxygen, humidity and, when needed, bronchoscopic intervention. Prophylactic use of broad-spectrum antibiotics is indicated, as well as energetic treatment of secondary bacterial invasion, when it occurs. Chronic nutritional deficit from pancreatic insufficiency can be partially alleviated by use of predigested protein preparations and exogenous enzyme products. Otherwise, a diet with a total fat content less than 50 grams, but rich in protein and carbohydrate, is indicated to provide 150 to 200 calories per kilogram of body weight. Extra sodium chloride should be given, especially during hot weather. Vitamin supplements must be administered, but oil-soluble preparations avoided.

Recently Izant¹² directed attention to the meconium equivalent syndrome. Intestinal obstruction in the older child with cystic fibrosis, secondary to abnormal intestinal content, occurs occasionally. Approximately ten cases have been reported, and not all the patients survived. Once the situation is recognized for what it is, these cases can be dealt with by conservative measures, for their pulmonary liabilities make the patients poor surgical risks.

Annular Pancreas

Abnormal embryological development of the pancreas is one of the four common causes of upper

intestinal obstruction in neonates, together with pyloric stenosis, duodenal atresia and malrotation. Usually if this anomaly is borne in mind as a possible cause of obstruction, surgical treatment can be carried out promptly and most satisfactorily. The rarity of the lesion, however, together with the fact that annular malformations in many patients produce no symptoms at all throughout life, make it improbable that any one physician will have much experience with this problem. There are in the medical literature many more postmortem reports of annular pancreas than of surgical cure.

Ravitch²¹ credited Ecker with giving this unusual malformation its most appropriate name over a hundred years ago. It is likely that Vidal in 1905 performed the first operation for relief of neonatal annular pancreas—a gastrojejunostomy. Subsequent reports of surgical attack upon the annulus were originally reviewed by McNaught,¹⁵ by Moore¹⁹ and by Hays.¹⁰ The latter tabulated 40 cases reported between 1944-1959, and noted an operative mortality of 31 per cent for infants in whom this was an isolated anomaly. When other defects complicated the case, the mortality rate more than doubled. Shapiro, Dzurik and Gerrish⁷ reported four cases, with successful surgical intervention in three.

As was previously mentioned, obstruction of duodenum is the primary problem. Other clinical findings sometimes associated with this anomaly include peptic ulcer, gastritis, duodenitis, pancreatitis and jaundice. Except for the latter, most of these sequelae have been observed only in older patients. Jaundice, however, has been associated with annular pancreas in at least three cases in infants. In these instances the common duct was sufficiently constricted by the annulus to produce an obstructive jaundice. Other anomalies reported have been duodenal atresia, Meckel's diverticulum, imperforate anus and incomplete rotation of the colon.

Various surgical techniques have been applied to this malformation. Besides the gastrojejunostomy of Vidal, other surgeons have attempted primary division of the ring. It is now quite clear that only one procedure is free of likely complication. In 1944 Chisholm and Gross,⁵ acting upon an earlier suggestion of William E. Ladd, accomplished anastomosis between the first portion of duodenum and the jejunum. Since that time this procedure has proved the safest and most effective technique for relief of the condition. The following report of an additional case includes the surgical procedure advocated.

Report of a Case

CASE 3. A 2,200-gram white girl was born spontaneously after a 43-week gestation during which polyhydramnios developed in the mother. Due

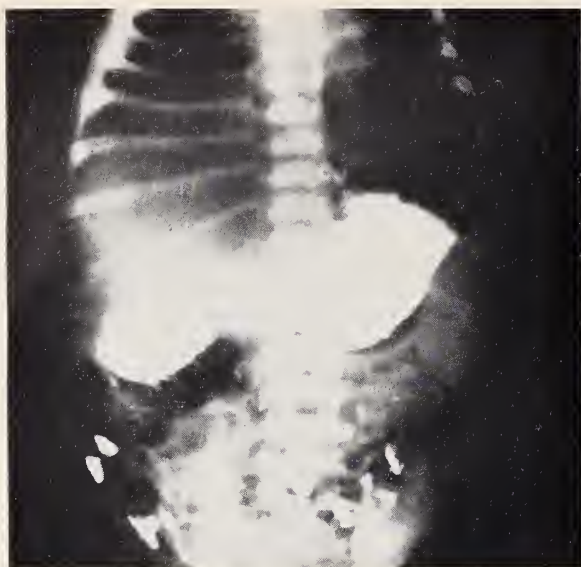


Figure 3.—X-ray film showing gastroduodenal obstruction from annular pancreas.

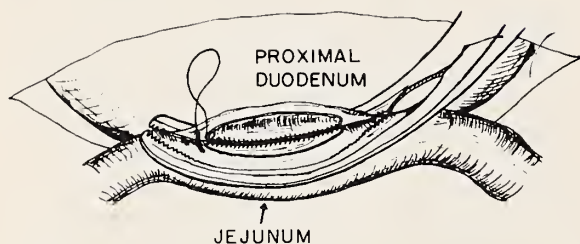


Figure 4.—Technique for duodenojejunostomy.

to persistent vomiting of bile-tinged undigested formula, and a 550-gram loss in weight in the first 36 hours, an upper gastrointestinal study was carried out. Enlargement of the pyloric canal and pronounced dilatation of the first portion of duodenum were noted. That small amounts of contrast media passed after delay indicated this was not a complete obstruction (Figure 3). Electrolyte studies of the blood demonstrated depression of the chlorides and elevation of carbon dioxide content.

After correction of these imbalances, exploration was undertaken. Operation revealed an almost complete obstruction of the duodenum by an annulus of pancreatic tissue. A Meckel's diverticulum and an incomplete rotation of the colon also were observed, but these did not appear implicated in the infant's immediate problem. Therefore the first portion of the duodenum was opened for suture to the most proximal segment of jejunum available. A retrocolic, isoperistaltic anastomosis, utilizing an inner row of fine catgut sutures and an outer layer of fine, interrupted silk, was performed, leaving the annulus undisturbed (Figure 4). Postoperatively the infant did well, passing stool by the second day.

She was discharged after a reasonable gain in weight and remained free of gastrointestinal complaint for more than seven years of observation.

Idiopathic Spontaneous Hypoglycemia

One as yet poorly understood but extremely grave process related to abnormal pancreatic function is that resulting in extremely low levels of sugar in the circulating blood. Frequently difficult to diagnose, this condition may develop early in infancy or in childhood, and if allowed to progress unabated may eventuate in severe mental degeneration. For this reason physicians must be alert to the possibility of spontaneously occurring hypoglycemia of the idiopathic type. Surgeons dealing with pediatric patients have need of a thorough knowledge of the condition since they may be called upon to decide as to the advisability of exploration for a pancreatic tumor (adenoma) or blind resection of pancreas for palliation.

According to McQuarrie¹⁶ diagnosis of the condition is made by elimination of all other known causes of infantile hypoglycemia (see Table 1). In 1954 McQuarrie summarized 40 cases of this entity, occurring in infants and characterized by early age of onset, absence of any particular physical stigmata, negative tests for hepatic, adrenal, thyroid, or pituitary insufficiency, a familial tendency, a

TABLE 1.—*Etiologic Classification of Spontaneous Hypoglycemia*

- | |
|--|
| I. Organic |
| A. Hyperinsulinism— |
| 1. Pancreatic islet cell adenoma |
| 2. Islet cell carcinoma |
| 3. Hypertrophy and hyperplasia of islets |
| B. Hepatic disease— |
| 1. Infectious |
| 2. Toxic |
| 3. Neoplastic |
| C. Metabolic errors— |
| 1. Glycogen storage disease |
| 2. Galactosemia |
| D. Anterior pituitary hypofunction |
| E. Adrenocortical hypofunction |
| F. Fibroma and sarcoma |
| G. CNS lesions (hypothalamic) |
| II. Functional |
| A. Hyperinsulinism, autonomic nervous system |
| B. Alimentary hyperinsulinism |
| C. Hyperinsulinism of infancy (Staub-Traugott) |
| D. Idiopathic spontaneous type— |
| 1. Leucine sensitive |
| 2. Leucine insensitive |
| E. Renal glycosuria |
| III. Miscellaneous |
| A. Exogenous insulin |
| B. Ingestions, toxic— |
| 1. Alcohol |
| 2. Acetylsalicylate |
| 3. Tiger lily seeds |
| 4. Methonium compounds |
| 5. Sulfonyleurea compounds |

trend to spontaneous recovery with age, and uniformly favorable response to cortisone.

Symptoms common to hypoglycemia from any cause in infants include stupor, drowsiness, pallor, sweating, restlessness and, in more severe cases, twitching and convulsions. Such symptoms, representing periods of lowered blood sugar, show no periodicity when related to idiopathic spontaneous hypoglycemia. However they are generally more common in the morning after a long night of fasting. Finding of blood sugar levels below 50 to 60 mg per 100 ml in association with some of the above symptoms suggests a causal relationship. Alleviation by ingestion of food or intravenous injection of glucose lends further support to this diagnosis. Confirmation rests with the results of a number of tests aimed at ruling out other causes for hypoglycemia, such as disease of the pituitary, thyroid or adrenal cortical tissues, and glycogen storage disease.

Such tests include liver function studies, fasting blood sugar levels, the glucose tolerance, insulin tolerance, epinephrine and glucagon tests, as well as leucine tolerance and plasma insulin examinations. In infants with functional hypoglycemia, the fasting blood sugar level is rarely found to be as low as in organic pancreatic, liver or adrenal disease. When hyperinsulinism is due to neoplasm, the fasting blood sugar is low and the curve may be flat, normal or of the diabetic type. The insulin tolerance test may be of value in diagnosing obscure causes of hypopituitarism or of adrenal insufficiency. The epinephrine test gives information concerning the presence and mobility of the stores of liver glycogen. In glycogen storage disease and other liver abnormalities, the response is absent or diminished. The glucagon test measures the same

functions as the epinephrine test. A flat curve indicates absence of liver glycogen or inability to convert it to glucose (see Chart 1). Plasma insulin levels determined by bio-assay show elevated levels in cases of hyperinsulinism and after leucine ingestion in leucine-sensitive hypoglycemic patients.

Treatment utilizes cortisone, 4 mg per kilogram of body weight per day, administered intramuscularly in four doses over a four-day period. During the following week, one quarter of this dose is given every 12 hours in the form of Acthar gel. If the fasting sugar levels remain normal, the same dose can be given once daily and continued until the disease may subside.

A review of the literature relative to idiopathic hypoglycemia in children was carried out by Haworth.⁹ This disclosed reports of 58 patients, 35 of whom had had symptoms before the age of six months. In almost all, convulsive seizures were the predominant problem. It was found that regulation of diet alone usually had been unsuccessful. A high carbohydrate diet tended to provoke attacks, presumably due to stimulation of insulin production. Of 25 of these patients who had surgical exploration, a partial pancreatectomy was curative in 15. Biopsy in a number of these cases showed hypertrophy of islet tissue. Haworth recommended that partial pancreatectomy should be performed in all such patients not responding to medical treatment within a few months.

Another pertinent report is that of Boley,⁴ who reviewed the world literature on functioning insulinoma. Of 17 patients with a functioning tumor, 12 had simple excision of the adenoma. One had resection of the body and tail of the pancreas, and one had resection of all but a portion of the head

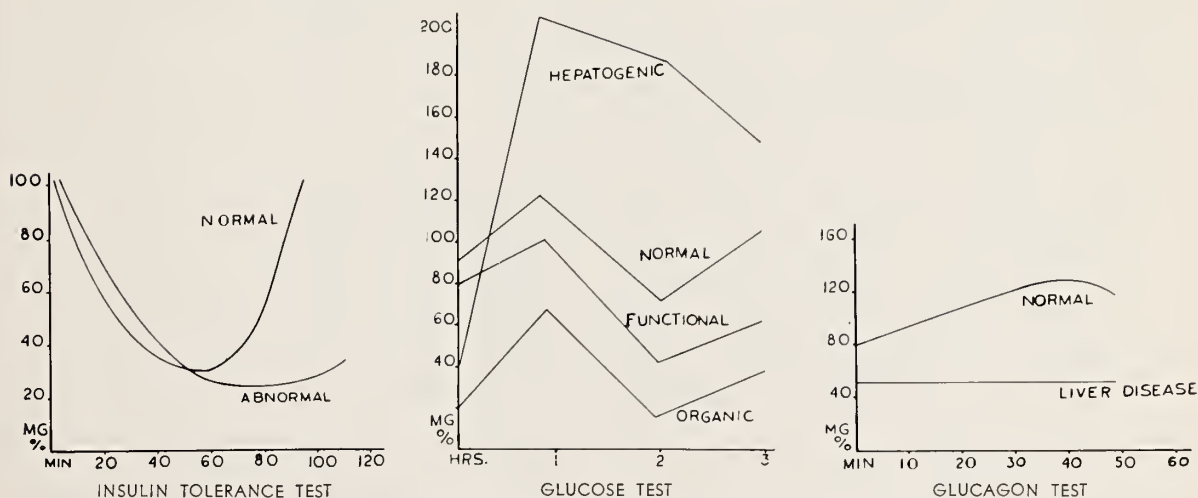


Chart 1.—Tests diagnostic for idiopathic spontaneous hypoglycemia.

TABLE 2.—Summary of Reported Cases of Carcinoma of the Pancreas in Infants and Children*

<i>Case No.</i>	<i>Author</i>	<i>Sex</i> <i>Age</i>	<i>Clinical Findings</i>	<i>Röntgenograms</i>	<i>Operation</i>	<i>Microscopic Diagnosis</i>	<i>Result</i>	<i>Autopsy</i>	<i>Remarks</i>
1	Bohn 1885	F 7 mo.	Abdominal mass, jaundice	None	None	Adenocarcinoma	Died	Yes	Adenocarcinoma head of pancreas. Hepatic and lymph node metastases.
2	Kuhn 1887	F 2 yr.	Hepatomegaly, diarrhea	None	None	Adenocarcinoma	Died	Yes	Pancreas almost replaced by tumor. Hepatic and lymph node metastases.
3	Stout and Todd 1932	M 4 yr.	Pain, abdominal mass	None	Biopsy	Adenocarcinoma	Died	Yes	Died 2 hours after operation. Had 2 cm mass head of the pancreas obstructing common bile duct. Hepatic and lymph node metastases.
4	Corner 1943	F 7 mo.	Pain, vomiting, abdominal mass, anemia	None	Biopsy	Adenocarcinoma	Died	Yes	Died 2 hours after operation. Carcinoma head of pancreas with metastasis to regional lymph nodes, liver, pleura and mediastinal lymph nodes.
5	Warthen, et al 1952	M 15 mo.	Anorexia, wt. loss, anemia, abdominal mass, jaundice, "celiac-like" syndrome	None	Biopsy	Adenocarcinoma	Died	Yes	Died several months after operation. Autopsy showed carcinoma head of pancreas with metastases to lymph nodes, liver, and lungs.
6	Warren 1955	F 11 yr.	Pain, abdominal mass	None	Pancreato-duodenectomy	Islet-cell carcinoma	—	—	No evidence recurrence 5 years after operation.
7	Becker 1957	M 15 mo.	Massive hematemesis and melena, abdominal pain, abdominal mass, anemia	Enlarged duodenal bulb and widened duodenal loop displaced anteriorly. Hepatic flexure of colon displaced inferiorly	Pancreato-duodenectomy	Adenocarcinoma	—	—	No evidence recurrence 10 months after operation.
8	Cattell 1957	F 11 yr.	Massive hematemesis and melena	None	Pancreato-duodenectomy; removal of half of stomach, rt. colon; later splenectomy	Cavernous hemangioma	Died	—	Died 8 years after operation from continued gastrointestinal bleeding.

* Modified from W. F. Becker, *courtesy Annals of Surgery*.

of the pancreas. There were no operative deaths. Nine of 14 children were completely well as late as seven years after operation. Four patients already had permanent neurological damage, but were relieved of any subsequent attacks. The conclusion was that conservative therapy is advisable for children under age four, with operation reserved for those whose disease is not controllable by cortisone. Surgical exploration is most advisable for all children over the age of four after response to cortisone has been evaluated. For this group Boley recommended blind pancreatectomy if no gross tumor is found.

Because of the devastating sequelae of unrelieved, repeated convulsive seizures due to hypoglycemic blood levels in infancy, it is strongly recommended that extensive pancreatectomy be carried out, even in those instances in which a functioning adenoma is not present. This recommendation is applicable to those of any age in which response to cortisone is poor; and it should be carried out before repeated episodes of lowered blood sugar do irreversible damage to the sensitive brain cells. Pancreatectomy is indicated whether or not serial frozen sections of pancreas reveal abnormal glandular structure. Gross³ described the need for close examination of the peripancreatic areas in the upper left abdomen to detect the presence of aberrant pancreatic tissue. It appears that the first path of approach in cases refractory to cortisone should be a conservative pancreatic resection. Then during the immediate postoperative period if it is found that such conservative resection has been inadequate to maintain normal blood sugar levels throughout the 24-hour period, reoperation had better be done for completion of total pancreatectomy and exploration for any aberrant pancreas which remains. In such cases, substitution therapy will of course be necessary, but it is far preferable to the irreversible brain damage inevitably incident to unrelieved hypoglycemia.

Miscellaneous Conditions

Shore²² called attention to the truly congenital cysts of the pancreas in adolescents—lesions that are quite distinct from the pseudocysts already discussed. These cysts are extremely rare. They are characterized by the presence of an epithelial lining which is not present in the pseudocyst, but are usually amenable to the same surgical management.

A patient with traumatic pancreatitis was observed recently at San Diego County Hospital. The abdomen of a five-year-old child was injured in a bicycle crash, and evidence of an acute abdominal disease was manifest 24 hours later. A rising serum amylase and leukocyte count led to laparotomy. Findings of a lacerated pancreas, torn mesocolon

and retroperitoneal hematoma plus some fat necrosis were treated by evacuation of the hematoma and sump drainage. It is apparent that such injuries when overlooked may go on to the pseudocyst formation described earlier.

Malignant tumors of the pancreas in infants and children are extremely rare. Up to 1955 only five documented cases of carcinoma had been recorded. Table 2 summarizes the features of all known cases. An interesting feature of the case presented by Becker^{1,2} is the fact that the child had an associated duodenal ulcer, which suggests the presence of the syndrome described by Ellison and Zollinger.

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Supervoltage Radiation Therapy

Use of the Linear Accelerator for Treating Ovarian Adenocarcinoma

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■ *In a study of patients treated thus far by supervoltage radiation from the Stanford linear accelerator, the following conclusions were reached:*

Homogenous radiation in doses of 4,000 rads may be delivered to the upper abdomen and 5,500 rads to the lower abdomen and pelvis for the treatment of ovarian cancer by the proper utilization of modern supervoltage radiation sources.

Patients with Stage 2 and Stage 3 lesions are best treated by total hysterectomy and bilateral salpingo-oophorectomy followed by total pelvic irradiation.

Stage 4 disease was seldom controlled by high dose radiation therapy to the entire peritoneal cavity.

An unusual histologic pattern has been found in the liver of three patients who died three to nine months after 4,000 to 5,000 rads had been given in a period of five or six weeks.

THE NATURAL HISTORY of carcinoma of the ovary is sufficiently variable to make evaluation of treatment difficult. Many methods of treatment have been advocated but no prospective controlled study evaluating these proposals has been reported; the results presented to date are not so different as to allow an obvious choice of a preferred method of treatment. The present report is of results of treating a group of patients with this disease in a uniform manner with supervoltage radiotherapy.

From the Department of Radiology, Division of Radiotherapy, Stanford University School of Medicine.

Presented before the Section on Radiology at the 93rd Annual Session of the California Medical Association, Los Angeles, March 22 to 25, 1964.

In order to be able to compare our data with the most recent and exhaustive reports, we have adopted the staging classification proposed by Rubin (Table 1).¹⁰

Present Series

The present series consists of 63 patients (Chart 1) seen in the Division of Radiotherapy at the Stanford Medical Center between the institution of treatment with the Stanford medical linear accelerator in January, 1956, through June, 1962. Referrals from private gynecologists and from the Stanford University Gynecological Service have

been considered, but there has been no established referral policy and these cases do not represent all of the cases seen at the Stanford Medical Center. No Stage I cases have been referred. An occasional patient with an advanced lesion has not been referred because of the philosophy of the attending physician. In all cases the lesions were proven histologically and no patient has been lost to follow-up. The age distribution is shown in Chart 2, the peak incidence occurring at age 51-55.

Treatment Program

The treatment program is as follows:

Surgical. Total abdominal hysterectomy with bilateral salpingo-oophorectomy is the primary treatment. Should widespread disease be discovered at the time of laparotomy, as much as possible of the primary and metastatic tumor is removed. We do not subscribe to the policy of leaving the uterus in place as a radium carrier.^{2,8}

Radiotherapy. The 4.8 million electron volt (MEV) Stanford medical linear accelerator* was installed in 1955, and treatment with it was begun in January 1956. Details of its operation have been reported.^{5,6,12,13} The decrease in skin reaction, bone absorption and integral dose induced us to attempt delivery of a homogenous dose of radiation throughout the entire volume of involvement. Sharp beam definition and accurate shielding enabled us to accomplish this while sparing vital organs such as the kidney. As there is no clinical or radiobiological data to indicate that cure of ovarian adenocarcinoma is possible with low doses of irradiation, the program has been to deliver as large a tumor dose as was considered feasible without undue risk of damage to vital organs.

*The usual operating energy has been 4.8 million electron volts (MEV).

Stage	Histologic Classification					Total
	A	B	C	D	E	
I						0
II	•••	•••	••			8
III	••••	••••	••••		•••	18
IV	•••••	•••••	••		••	34
Total	23	24	8	0	5	60

Chart 1.—Distribution of patients with carcinoma of the ovary, by stage and histologic classification.

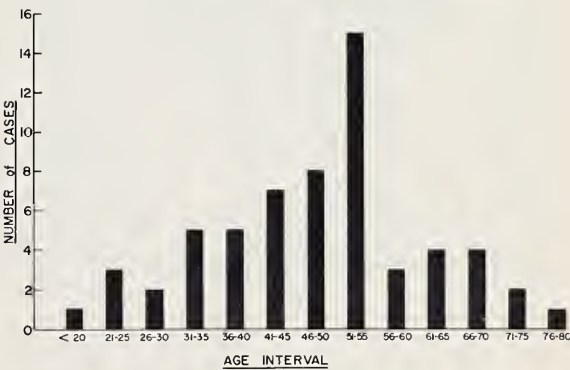


Chart 2.—Age distribution (in years) of patients treated for carcinoma of the ovary with supervoltage x-radiation.

Data on the treatment of various stages of disease follow:

Stage I. No Stage 1 cases were referred. It does not seem logical to add the risks of radiation therapy in those cases in which all disease has been removed and there is no histological evidence to suggest spread beyond the ovary.

TABLE 1.—Classification of Ovarian Carcinoma.¹⁰

Anatomic	Histologic
1. Tumor limited to ovary grossly, completely removed surgically, no evidence of microinvasion.	A. Well differentiated cystadenocarcinoma serous and/or mucinous.†
2. Tumor showing break through capsule, excrescences, infiltrated adhesions, grossly removed surgically, evidence of microinvasion of capsule, lymphatics, and blood vessels.	B. Poorly differentiated cystadenocarcinoma, serous and/or mucinous.
2S. Ruptured capsule or cyst with spillage of fluid.	C. Solid adenocarcinoma.
3. Tumor infiltrates other pelvic viscera as fallopian tubes, uterus, other ovary, bladder, rectum, sigmoid, pelvic peritoneum, grossly limited to pelvis, surgically not completely removed.	D. Endometrial type of adenocarcinoma.
4. Tumor has metastasized beyond pelvis.	E. Special tumors: Granulosa cell carcinoma, dysgerminoma, arrhenoblastoma, etc.

†Includes borderline carcinomas.

Stage 2. The 30 to 50 per cent incidence of local pelvic recurrence, makes postoperative irradiation advisable.¹¹ A midplane tumor dose of 5,000-5,500 rads,* delivered in five to six weeks at approximately 200 rads per day, is given through equally weighted anterior and posterior fields reaching

* All doses mentioned are tumor doses.



Figure 1.—Verification film of pelvis.

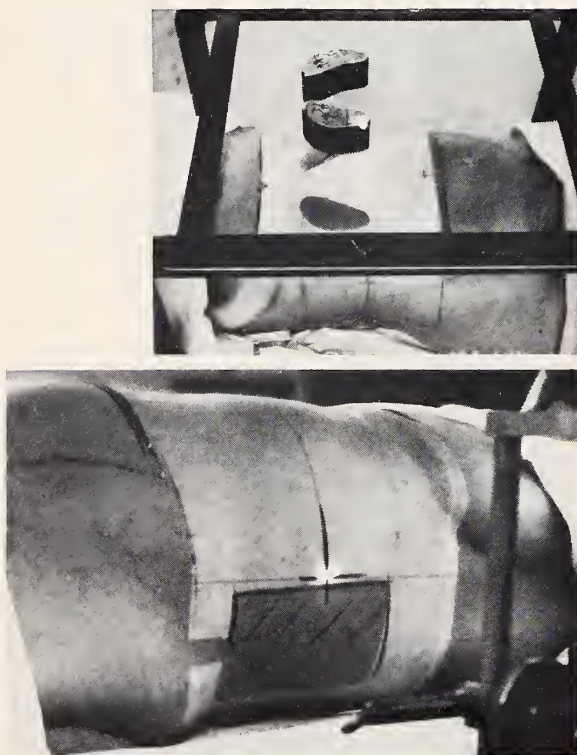


Figure 2.—Upper abdominal fields with kidney blocks in place. *Right*, anterior; *below*, left lateral.

from the pelvic floor to the pelvic brim and from sidewall to sidewall (Figure 1).

Stage 2S. We have employed radioactive gold, radioactive chromic phosphate and several chemotherapeutic agents administered intraperitoneally at various times. There has been no detectable advantage in the use of the radioisotopes. Accordingly, we have advised installation of approximately 50 mg of triethylthiophosphoramide dissolved in 100 ml of saline solution at the time of laparotomy just before closure. We rely upon this agent to prevent the

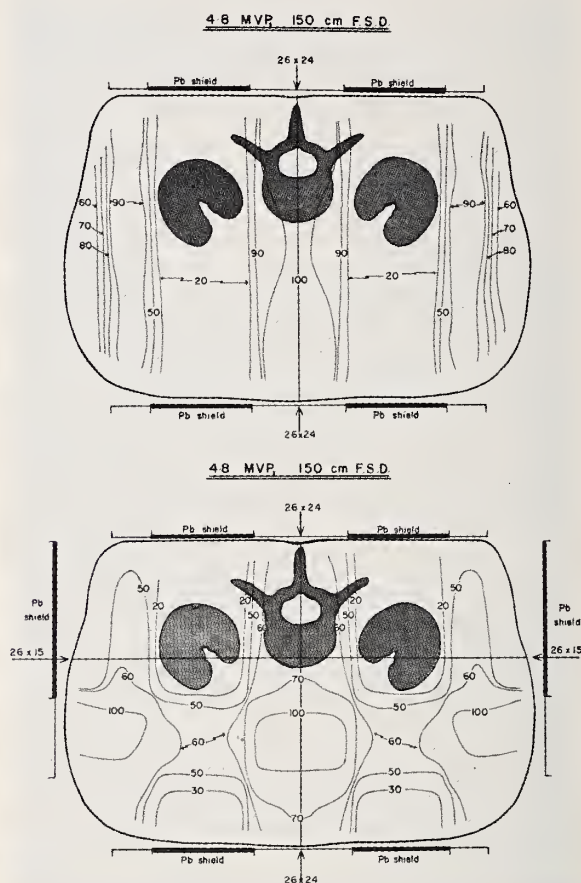


Figure 3. Isodose patterns for kidney shielding. The contour lines outline the distribution of the radiation in the patient with the two methods of kidney shielding; for example, if 4000 rads were delivered to the 100 per cent isodose contour, the 20 per cent contour would receive 800 rads.

Upper picture shows directly opposing anterior and posterior fields, 26 cm by 24 cm in size. Note the low dose volume anterior to the kidneys.

Lower picture: Four-field technique, 26 cm by 24 cm anterior and posterior fields and 26 cm by 15 cm opposing lateral fields. Note the improvement in dose distribution anterior to the kidneys.

MVP=Million volt peak. 4.8 MVP=Current operating energy of the Stanford medical linear accelerator. FSD=Focal-skin distance.

attachment and growth of cells floating free in the peritoneal cavity. These cells do not have a vascular supply and may be expected to be hypoxic and relatively radioresistant.³ In a number of patients with this stage of disease local recurrence will develop within the pelvis and radiotherapy in this group of cases is given as outlined under Stage 2. An occasional patient has been treated with x-radiation to the entire peritoneal surface; but because of the complications to be mentioned later, we no longer advise this.

Stage 3. Postoperative radiotherapy improves the survival rate in the presence of residual disease in the pelvis.^{1,4,7,9,11} Treatment is as outlined for Stage 2.

Stage 4. Treatment to the entire peritoneal cavity is required. The pelvis is treated first with fields similar to those described under Stage 2, but with a daily tumor dose of approximately 150 rads. If this daily dose is tolerated well, matching upper abdominal fields extending to the dome of the diaphragm are added after two weeks of pelvic treatment. The upper abdomen is treated through directly opposing equally weighted anterior and posterior fields to a midplane dose of 1,500-2,000 rads. The kidneys are then localized and protected by lead blocks 42 mm thick, and treatment is continued with an equally weighted four-field technique until a midplane dose of 3,500-4,500 rads has been delivered (Figure 2). This usually takes five to six weeks, making the overall treatment time approximately two months. As can be seen from Figure 3 the four-field technique minimizes the low dose volumes while providing adequate protection for the kidneys.

Palliation. Tumor doses of 2,000-3,000 rads are usually sufficient to control painful metastatic lesions

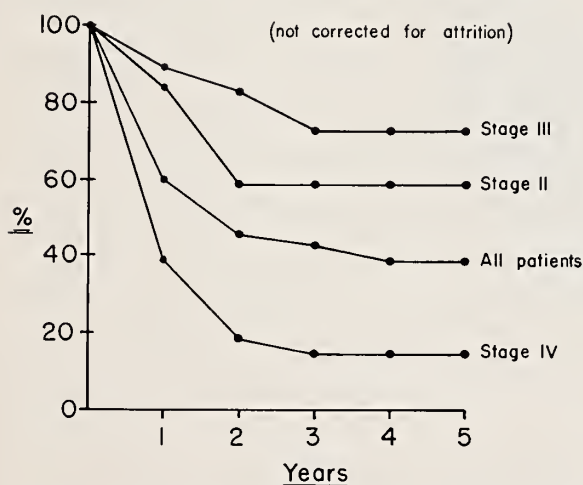


Chart 3.—Cumulative survival data, carcinoma of the ovary (Stanford University Medical Center, Division of Radiotherapy).

and bleeding, but have failed frequently to control ascites even when delivered to the whole abdomen.

Results

Survival data. Our results grouped by stages are shown in Chart 3. The projected four-year survival rate is 60 per cent in Stage 2, 73 per cent in Stage 3, and 15 per cent in Stage 4.

Hematologic effect. Pelvic irradiation was accompanied by a reduction in the white blood cell count below 3,000 cells per cu mm in only 13 per cent of the patients. The range of minimum counts was 2,000 to 5,800 cells per cu mm with a mean value of 3,900 cells per cu mm.

Irradiation of the entire abdomen resulted in a significant further reduction of the leukocyte count. Sixty per cent of the minimum values were below 3,000 cells per cu mm. The range of minimum counts was from 2,000 to 4,000 cells per cu mm with a mean of 2,300 cells. Depression in the leukocyte count was not associated with any early complication, and in no case was it necessary to interrupt treatment for more than a day or two.

Gastrointestinal effects. Although two-thirds of the patients were given medication for control of mild diarrhea and/or nausea, pelvic irradiation was tolerated well. Reduction of the daily dose because of gastrointestinal upset was rarely necessary.

Irradiation of the entire abdomen was not tolerated well. All patients required medication for control of diarrhea and/or nausea with vomiting. In two cases, late bowel complications developed, requiring surgical intervention in the absence of recurrent carcinoma.

Hepatic effects. Three patients died shortly after the conclusion of radiation therapy to the entire peritoneal cavity, with signs of hepatic failure, but no tumor could be demonstrated in the liver at post-mortem examination. The histologic changes in the liver were unusual and will be reported in greater detail in a separate publication.

Renal effects. The dose received by the kidneys in the method described is of the order of 2,000 rads in three weeks. No case of clinical radiation nephritis has been apparent, and no significant changes have been seen on histologic examination of the kidneys of those patients who have been examined postmortem.

Discussion

The survival data presented are similar to those reported from other radiotherapy centers.* The results in Stages 2S and 3 confirm the advantages of

*References Nos. 1, 4, 7, 9, 10, 11.

postoperative radiation therapy and suggest that the combined surgical-radiation therapy approach offers the best chance for cure.

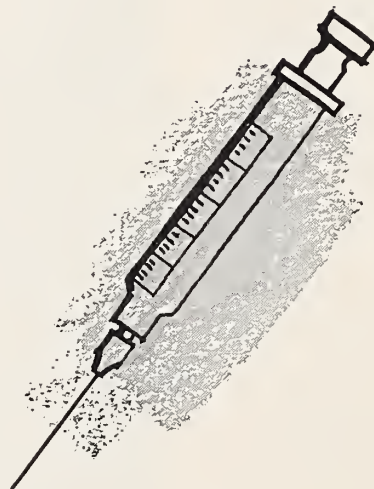
High dose irradiation, homogenously delivered to the entire peritoneal cavity, has not altered the outcome of Stage 4 poorly differentiated adenocarcinoma of the ovary. As has been reported by other investigators, patients with Stage 4 disease, the histologic features of which are well differentiated, may survive for long periods with minimal treatment, and we have not changed the outcome in this group.

In about 85 per cent of the patients with Stage 4 adenocarcinoma the disease was not controlled by our dose schedule. The mean survival following irradiation was six months. One must carefully consider the lack of palliation, the addition of radiation induced morbidity, the occurrence of late bowel complications, moderately severe leukopenia and the possibility of serious liver damage before advising intensive large field irradiation to Stage 4B ovarian cancer. It is our belief that in carefully selected patients with Stage 4 disease the lesion may be controlled and these are continuing in the program but the dose to the liver is limited to 3,000 rads.

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The Anxious Patient

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■ *Anxiety appears in many disguises and mimics most other afflictions. Once the anxious patient has been recognized as such and a proper diagnosis is made, management of him is easily carried out within the framework of the medical transaction. Lack of awareness of underlying anxiety in a patient who presents with somatic complaints can lead to poor results for the patient and frustration for the physician. It is not the physician's role to remove all anxiety. Rather, it is his mission to manage the anxious patient so as to mediate the anxiety allowing for integrated adaptive function.*

ANXIETY is the most frequent cause for a patient's seeking the help of a physician. Since it can mimic most other afflictions, it is presented to the physician in many disguises. Anxiety is a danger signal, heralding a threat to the core of human existence. As such it is necessary for preserving physical health and maintaining psychological balance.⁶ Many papers have appeared in the medical literature speculating upon the meaning and the philosophy of anxiety. In the psychiatric literature, there are attempts to classify anxiety and to differentiate various types of adaptive and mal-adaptive forms, but the present discussion is focused on the recognition and management of the anxious patient who seeks help within the framework of the medical transaction.

Recognizing the Anxious Patient

Not very many anxious patients present themselves to the nonpsychiatrist physician with an initial complaint of anxiety. Usually the patient's complaint is one of a wide spectrum of vague or specific somatic symptoms. The particular complaint he chooses as his "entrance ticket" into the medical transaction is determined not only by the particular physiological manifestation of his anxiety but also by the specialty and the interest of the physician from whom the patient is seeking help.

To what extent the "entrance ticket" is determined by the interest of the physician is very clearly demonstrated in a setting such as a county hospital, where one patient may visit many specialty clinics concurrently. In a review of the charts of patients who attended more than five clinics at the same time, it became clear that in each clinic a different aspect of the patient's anxiety was presented and treated. The same patient during the same week

⁶From the University of Southern California School of Medicine.

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would discuss his fears and worries in the psychiatric clinic, his gas pains and diarrhea in the gastrointestinal clinic, his headaches and dizziness in the neurology clinic and his incapacitating back pain in the orthopedic clinic. All of these complaints were real and all of these symptoms were manifestations of the same anxiety in the same patient during a specific week.⁴

How is it, then, that the content of the transaction in each of these clinics was so different? This question can best be answered by observing initial interviews. Such observations demonstrate that much of what we hear from the patient is dictated by the clues to our interest which we give the patient. Many times these clues are more important in determining the patient's chief complaint than is his own concern. Contact with the physician as a representative of a helping situation is highly valued by most patients and endowed with much magic.

Within the framework of the medical transaction most patients, particularly the chronically ill who are very much in need of the physician's interest and concern, will do almost anything to please him.² When the physician begins the encounter with, "What brings you here?", the patient might well reply with: "I haven't been feeling well, Doc. For the last few weeks I have been worried, my back hurts all the time and I have lots of trouble with my gut. Besides that, I have lots of headaches and I feel dizzy. I wonder whether I am getting old."

The physician then might reply, depending on his interest, with, "What are these headaches like?" Or, he might say, "How often do you have a stool each day?"

After the physician has presented his interest to the patient by this type of questioning, very frequently the content of the entire transaction between the patient and the physician is determined. The patient discusses his anxiety in terms of that symptom in which the physician has expressed an interest. The physician treats that symptom of anxiety which is consistent with his specialty. Indeed, the entire management of the anxiety may be carried out by the physician within the metaphor of a particular organ system determined by the specialty of the physician. At times in the hands of the inexperienced physician this may lead to much unnecessary medical and surgical intervention which is of limited help to the patient. Thus, the initial complaint, the entrance ticket of the patient into the helping situation, may indeed only be a peripheral manifestation of the problem of anxiety. If the physician does not recognize the chief complaint as a mere entrance ticket, he may easily be led astray and subsequently find himself frustrated in the recognition that his intervention proved ineffective. The presenting complaint thus is seen by the expe-

rienced physician as a token in order to obtain listening, understanding and concern. The experienced physician who accepts the patient's admission ticket in these terms then gives him the opportunity to pursue his real concern. Frequently he will hear no further mention of the symptoms which serve to bring the patient to the physician.

The somatic symptoms presented to the physician by the anxious patient are not only determined by the interpersonal transaction but also by the specific processes within the patient. Patients develop a target area or an organ system which is most readily available as a focus for anxiety. This "locus resistencia minoris" is determined not only by the genetics and previous medical history, but also by many other factors of internal and external environment. In terms of such a view, the concept of a physiological personality emerges.⁵ Most usually, personality refers to a psychological abstraction which describes a particular pattern of adaptive mechanisms with which the individual copes with internal and external stresses. Personality is that coping behavior which is characteristic for a particular individual. Similarly, we could say that an individual has a pattern of physiological responses to both emotional and physical stress which is characteristic for him and which is determined by a multitude of factors. One might well think of this in terms of a physiological personality. Once we recognize that psychological and physiological coping behavior is determined by the total history of the individual, the multiplicity of presenting complaints of the anxious patient becomes much more understandable.

The theoretical approach to the understanding of the physiological manifestations of anxiety has undergone major changes during the past 60 years. In the early times of modern psychological medicine, interest was focused on the somatic manifestations as symbolic representations of the content of conflicts leading to anxiety. Psychophysiological reactions were viewed as synonymous to conversion reactions in which the particular symptom choice was a symbolic representation of the conflict. This view could not be supported either by research or by logic. This earliest conceptualization was replaced by the idea that each patient had a personality type which was consistent with only one kind of physiological manifestation of anxiety. Although somewhat similar to the "locus resistencia minoris" concept previously mentioned, this approach did imply that certain kinds of physiological manifestations were mutually exclusive. For example, in this system it was impossible for a person with an "ulcer personality" to develop asthma because the "asthma personality" was postulated to be quite different. These theoretical formulations had to be

discarded because they were not borne out by fact.

During the past 25 years Dr. Franz Alexander, the father of contemporary psychosomatic medicine,¹ developed a conceptual framework in which the somatic manifestation of anxiety is related to the specific conflict in the patient. For example, if the conflict related to the problem of dependency-independency, then the somatic manifestation might well involve that organ system in which the issue of dependency was first encountered, namely, the upper gastrointestinal tract. This conceptual model was most useful in psychodynamic research of specific psychosomatic disorders. However, even this theory required the presence of a postulated x factor in the chain of causality.

In recent years under the influence of Stewart Wolf's theory of causality of the "relevant etiological factor" and Maxwell Gitelson's critique of current concept of psychosomatic medicine, we have begun to ask a new kind of question. While formerly the physician had asked, "What causes this illness or symptom?" and had expected a simple, clear answer in accordance with Koch's postulates, now the complexities of the causal chain became ever more apparent and could not be conceived in such a simple, theoretical framework.

The contemporary physician must seek that peculiar combination of biological, psychological, social and cultural forces which impinge upon the patient to produce a symptom or an illness. The new question is, "What conditions taken together make it possible for this symptom to emerge in this patient at this time?" Such a multi-dimensional approach to the understanding of the meaning of symptoms takes full recognition of the fact that no two individuals are the same. Thus, the same symptom in two different individuals may have entirely different meaning. Furthermore, a similar symptom in the same individual at different times may require a different kind of understanding. This multi-dimensional view of illness allows the physician to see the symptom as the final common path of a multitude of dynamic interacting forces which impinge upon the anxious patient as he presents himself for help.

Management of the Anxious Patient

The most potent agent in the management of the anxious patient is the therapeutic exploitation of the physician-patient relationship.³ By the very nature of the traditional medical contract, the role of the physician and the role of the patient is defined. The patient expects help, comfort, advice, healing and even magic. The physician attempts to meet these expectations. These expectations, if consciously and properly managed by the physician, can become potent therapeutic agents. The physician who is seen as the representative of the helping situation and

who is endowed with all the wisdom and all the magical powers previously bestowed upon the high priests and the parents, is a powerful authority figure. This power of the physician to relieve anxiety is demonstrated in the instant relief frequently seen when a patient merely has an appointment to see the helper. At the moment in which the patient contracts with the physician for care, treatment of anxiety has begun.

There are many techniques for reinforcing this built-in, therapeutic intent of the medical transaction. These techniques include the physician's interest, concern, hope and reassurance. From the outset, the medical transaction implies therapeutic intent. The very fact that a physician and a patient get together for a medical transaction demonstrates interest, that change and help is possible, that this is the beginning of a helping relationship—the possible beginning of health and an open future. The transaction must emphasize hope;⁸ it must demonstrate the therapeutic attitude of the physician.

Perhaps the simplest maneuver by which this can be accomplished is to let the patient know that the physician will offer future appointments. Even in a hopeless medical situation we ought not close the door. We do not say to the patient, "There is nothing I can do for you medically; don't bother coming back to waste your money and my time." Of course none of us would say this to a patient with terminal cancer. But how many of us might say something of the kind to the suffering, anxious patient who is not responding to treatment. Since physicians have recognized that giving hope is an important aspect of treatment and that helping and comforting a patient we cannot cure is one of the important functions of medicine, we can readily see that many chronically anxious patients are deprived of adequate and proper medical care. This in no way implies that the physician should ever make promises or should ever be unrealistically optimistic or misleading.¹⁰ It does imply that in the medical transaction in which a physician and a patient get together, hope and help are built into the structure and should be allowed to remain there. The patient has the right to expect this from the helping situation. Furthermore, he has the right to take something home from each contact in the medical transaction. At times, this is advice or a diagnosis or a prescription; at other times, it is the feeling that it is possible to be understood.

The anxious patient responds well to reassurance. We have already indicated that much reassurance is built into the physician-patient transaction. However, there are some specific techniques of reassurance which can be learned and which, if carried out, prove most effective. The reassuring activity

by the physician consists of (1) letting the patient know that his feelings of anxiety are recognized, (2) that he is allowed to talk about these feelings if he wishes, and (3) that his anxiety can be accepted by the physician with a non-judgmental attitude. For example, when a physician carries out a medical procedure of which the patient is frightened, the most reassuring statement he can make is to say to the patient, "I guess you are frightened." This simple statement communicates the three attitudes previously enumerated. It lets the patient know that his feelings are recognized, that he may talk about these feelings if he wishes, and that the physician is willing to listen without judging the patient to be a coward or a fool. Many times such a simple, gentle confrontation provides prompt and effective reassurance. If the physician had said, "Now, don't be afraid"—which on the surface might appear to be reassuring—he might discover in fact that the patient's anxiety increased. Such a statement might imply to the patient that he should not be afraid, that the physician cannot understand such fears and will not tolerate or accept such an attitude.

From the foregoing discussion, it becomes clear that "doing what comes naturally" can lead to error in the treatment of patients. Many physicians, meaning to reassure the patient who is about to cry, will be tempted to say, "Now, don't you cry." Or they may say, "Don't worry," to the patient who, if he could respond to such a simple command, would never have come to the physician for help.

Use of Drugs

In recent years drugs have become a useful adjunct in the treatment of anxious patients. Since it is difficult to separate the pharmacological from the psychological effect of tranquilizers, very little accurate information on the specific pharmacological effectiveness is available. Unfortunately, the importance of these drugs has been somewhat overrated and over-valued. Many of the drugs indeed do not produce "tranquillity," but rather relieve some of the tension and provide sedation. If we view the modern tranquilizers as slight improvements over the barbiturates and if we see them as useful adjuncts in the management of the anxiety-ridden patient rather than as specific drugs, then we can make much more realistic use of them. Most anxious patients, when they are offered a helping relationship, do not require tranquilizers. Some patients take the tranquilizers in lieu of or as a symbol for the helping situation. A few patients require some chemical help in dealing with their anxiety, and for this small group tranquilizers are of considerable value. In general, the best drugs are those which have been used the most and thus with which we have the most experience; these are

phenothiazines such as chlorpromazine (Thorazine®), and minor tranquilizers such as meprobamate and chlordiazepoxide (Librium®). Experience shows very little predictable difference between the various tranquilizers, although specific patients may respond better to one or the other. The least amount of the drug for the shortest period of time possible should be used in the management of the anxious patient. Since the tranquilizers decrease not only the awareness of internal tension but also of the outside world, they may indeed interfere with the value of the therapeutic relationship.

Vigorous attack upon specific symptoms of anxiety with drugs, with surgical operation or with hypnosis has, at times, proven ineffective and even detrimental. The patient's response to the medical intervention can be predicted to a large extent from a knowledge of his particular life-situation and life-style. How important particular symptoms have become in the life of the patient will determine how readily the patient can give these up. If a symptom or disability has persisted for some time and has been incorporated into the life-style, then medical and surgical intervention may not result in relief of incapacity even though the specific symptom be removed. At times, removal of a specific symptom may indeed cause the appearance of a more malignant group of symptoms, including major personality disorganization.⁹ It is for this reason that hypnosis should not be used for removal of functional symptoms without a careful and skilled psychiatric evaluation. Only when a patient is psychologically ready to give up a specific symptom of anxiety will he respond satisfactorily to the treatment intervention for specific symptoms.

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Injury to the Throwing Arm

A Study of Traumatic Changes in the Elbow Joints of Boy Baseball Players

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■ *X-ray studies were made of both elbows of 162 boys in the 9 to 14 year age group, divided into three categories: Pitchers, non-pitchers, and a control group who had never played organized baseball.*

Changes involving the medial epicondylar epiphysis and opposing articular surfaces of the capitulum and head of radius in the throwing arm appeared to be in direct proportion to the amount and type of throwing. The most striking changes were in the arms of pitchers. Some degree of accelerated growth, separation and fragmentation of the medial epicondylar epiphyses was noted in the throwing arm of all 80 pitchers in the study. Five cases of traumatic osteochondritis of the capitulum and head of radius, and one case of juvenile osteochondritis of the head of the radius were also found among the pitchers.

Better medical supervision and stress on prevention are needed, especially in the Southern California area where climatic conditions favor prolonged seasons and throwing practice the year around.

THROWING A BASEBALL hard, especially as required by pitchers, is a relatively abnormal activity of the arm and it puts an unusual repetitious strain on wrist, shoulder and elbow. The elbow joint, with which this communication is concerned, is forcefully whipped from a position of acute flexion into complete extension with either pronation of the forearm or (if throwing a curve ball) supination and ulnar flexion of the wrist. This latter maneuver puts additional traction strain on the medial epicondyle of the humerus which is the point of attachment of the pronator and flexor muscles of the forearm. Since the epiphyses are still open at this age, the epicondyle is weakly attached to the humerus and, therefore, quite vulnerable to repeated forceful pull of these muscles.

Baseball coaches and managers argue that many sore arms are due to wrong throwing motions or failure to warm up properly, which is often true in adults. In youngsters 9 to 14 years of age, however, regardless of the throwing motion, it is quite obvious that the un-united epiphyses must still be subjected to the pull of the attached muscles. The opposing articular surfaces of the joint are also subjected to repeated trauma from excessive throwing. Trauma of this kind can eventually bring about osteochondritic changes with exfoliation of the cartilage. This is the cause of loose bodies and bone chips so commonly found in professional pitchers, but rarely seen in youngsters of this age group before the advent of organized baseball programs for them. Owing to favorable climatic conditions, the baseball season in Southern California

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is overly prolonged and many youngsters, especially pitchers, practice throwing the year around. Several enthusiastic fathers have admitted building pitching mounds in their back yards so that their boys might practice.

The frequency of elbow problems with x-ray changes among pitchers coming to our attention prompted me to obtain the sanction and cooperation of Little League and Pony League administrators to conduct a large scale survey. The survey consisted of taking comparative x-ray films of both elbows of 162 youngsters in the 9 to 14 year age group divided into three categories: pitchers, non-pitchers, and a control group who had never played organized baseball. No boy with a history of elbow fracture, severe infection or deformity of either arm was included in the study. Pertinent questions, primarily directed at obtaining information about pitchers, were asked of each boy. Eighty of those questioned were pitchers and the average length of time they had pitched was three years. The questions and the incidence of "yes" answers were as follows:

	"Yes"	Per Cent
Do you throw curves?	68	85
Do you play other position days not pitching?....	77	98
Do you practice throwing at home during and off season?	69	88
Do you have elbow soreness or pain while pitching?	34	45
Have you reported soreness or pain to manager or parent?	21	27
Have you been seen by physician?	9	12
Is there history of heel or knee pain?	13	17

Because of apprehension and suspicion that to admit they had elbow soreness might prevent them from playing, it is probable that the number with soreness was higher than 45 per cent. The nine boys seen by a physician either had severe pain during the season or waited till after the season was over to report. In all other cases the pain was treated by managers and parents with heat, massage or linaments, or was ignored. The 13 boys with history of heel or knee pain also showed epiphyseal involvement in the elbow.

The x-rays show a very definite pattern of changes involving the medial epicondylar epiphysis and radiohumeral articular surfaces of the elbow joint of the throwing arm only. The changes were in direct proportion to the amount and type of throwing, as follows:

<i>Roentgenographic Changes</i>	<i>Pitchers (80)</i>	<i>Non-Pitchers (47)</i>	<i>Control Group (35)</i>
Accelerated growth and separation medial epicondylar epiphysis	76	7	3
Fragmentation medial epicondylar epiphysis	39	6	2
Osteochondritis capitulum humerus and head of radius	6	0	0

Reports of Cases

The following cases are typical of those in which there were changes involving the medial epicondyle:

CASE 1. The patient, 13 years of age, had pitched two years of Little League and admitted soreness in the elbow but did not tell the manager or his parents lest he not be allowed to play. During Pony League tryouts pain necessitating medical attention had developed. Upon examination pronounced swelling and tenderness were noted over the medial aspect of the left elbow overlying the medial epicondyle. X-ray films (Figure 1) showed increased density and enlargement of the left medial epicondyle as compared with the right arm. Without comparative x-ray films, however, this would have been interpreted as normal.

This was a typical case of epiphysitis which subsides on complete rest of the arm. The patient in this case could resume playing ball but should not pitch until the epiphyses are closed and he should avoid unnecessary throwing.

CASE 2. The patient was a 12-year-old boy who had been pitching one year, throwing curves. He



Figure 1 (Case 1).—Medial epicondylar epiphysitis showing increased density and enlarged left medial epicondyle.



Figure 2 (Case 2).—Separation right medial epicondylar epiphysitis with accelerated growth.

also played third base and catcher on days he was not pitching. He admitted having elbow soreness when throwing. X-ray films (Figure 2) showed separation and accelerated growth response to traction strain from excessive throwing.

CASE 3. A 13-year-old boy who pitched and played catcher for four years of Little League admitted some soreness in the elbow during these years. Severe pain in the elbow had developed when he was trying out for the Pony League. On examination, decided tenderness and swelling were noted over the medial aspect of the elbow. X-ray studies (Figure 3) showed medial epicondyle fragmentation of dissecans type and accelerated growth as compared with the opposite arm. The lesion was completely healed after three months of complete rest of the arm.

The boy in this case had apophysitis of both heels at the age eight, indicating a predisposition to epiphyseal involvement. He resumed playing ball but not pitching or throwing unnecessarily.

CASE 4. The patient, aged 12, had been pitching for two years, throwing curves. When not pitching he played third base. He admitted having elbow soreness. An x-ray film (Figure 4) showed characteristic fragmentation of avulsion type with accelerated growth as compared with the opposite arm.

Approximately 50 per cent of the pitchers in the

series showed change of this type in the throwing arm only. Figure 4 also shows an x-ray film of the elbow of a 21-year-old pitcher who had pitched ten years, from Little League through college, and admitted having considerable pain during his Pony League years. The irregularity of the lower end of the epicondyle of the throwing arm shown in the film conforms with the fragmentation seen in the elbow of the 12-year-old patient. Apparently this represents the end result of lesions of this type. The 21-year-old with the residual radiographic change still had elbow pain when he threw hard and was quite worried about his future, as he had just signed a major league contract. In my opinion, his pitching career is already behind him.

CASE 5. The patient was a 13-year-old boy who had been pitching since age nine despite frequent soreness of the elbow. He had been throwing curve balls since age 11. He said that something snapped in his elbow while he was pitching in a Pony League game and severe pain and swelling followed immediately. X-ray films showed a complete transverse fracture through the medial epicondyle with greatly accelerated growth as compared with the opposite arm. The fracture was of fatigue type rather than fragmentation. The boy gave up baseball but two

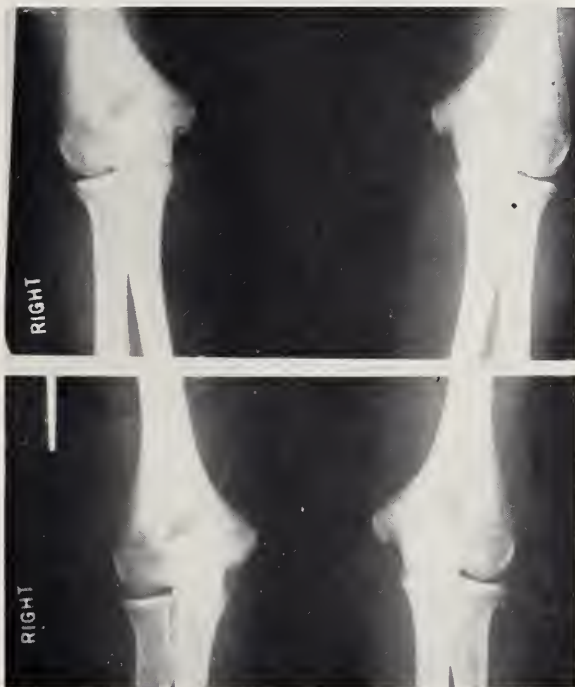


Figure 3 (Case 3).—Upper film: Pronounced accelerated growth with lesion of dissecans type of the right medial epicondyle. Lower film: Lesion healed after three months of complete rest.



Figure 4 (Case 4).—Upper film: Avulsion fragmentation of right medial epicondyle with accelerated growth as compared with left. Lower film: Elbows of 21-year-old pitcher. Irregularity of lower end of medial epicondyle of throwing arm conforming to fragmentation noted in upper film.

years later was still having elbow pain when he threw hard on his paper route.

In the following cases the patients had osteochondritic lesions involving the articular surfaces of the capitulum of the humerus and the head of the radius. As such lesions are serious and can become permanently disabling, early recognition and treatment is extremely important. In all but one of the cases reported in the following paragraphs the pathologic process was far advanced before medical attention was sought. Since in some of these cases the existence of the condition was not known until it was noted in the present survey it is probable that there are others still undiagnosed. A probable eventuality in many cases of this kind (as in one here reported) is operation for removal of loose bodies from the elbow joint in later life.

CASE 6. A 14-year-old boy pitched Little League ball from age nine until age 12, when he had to quit because of severe pain in the elbow. He did not, however, seek medical attention. He had thrown curve balls and practiced throwing before and after the baseball season. At age 14 severe pain developed in the elbow when he tried throwing a football. As he could not completely straighten the elbow, he consulted a physician for the first time.

Upon examination pronounced tenderness was noted over the radiohumeral joint. X-ray studies (Figure 5) showed a large area of erosion of articular cartilage of the capitulum of the humerus, enlargement of the head of the radius and premature closure of the epiphysis as compared with the opposite arm.

At operation, exfoliation of cartilage from the opposing surfaces of the capitulum and the head of the radius (Figure 6) were noted and there were loose fragments within the joint. On flexing the elbow to 90° the enlarged deformed head of the radius was seen to make firm contact with the capitellum and to subluxate in order to effect complete supination. Loose fragments were removed but the patient's parents would not consent to excision of the head of the radius which should have been done for a better functioning elbow.

CASE 7. A 16-year-old boy who had pitched four years in the Little League, throwing curves, and had played third base on days he was not pitching, stopped pitching at age 13 because of pain in the elbow, and played in the outfield. At age 16 the elbow pain was so severe that he could not straighten the joint completely, and at last he consulted a physician. Upon examination pronounced tenderness over the radiohumeral joint and 30 degree restriction of extension of the elbow was noted. X-ray films showed a large area of erosion of articular cartilage of the capitellum, enlargement of the

radial head and premature closure of the medial epicondylar epiphysis. Operation was recommended but was refused.

CASE 8. The patient, 13 years of age, had pitched and played other positions for five years. He had pain in the elbow which became progressively worse during the Pony League season, but a physician was not consulted until the season ended. On examination pronounced tenderness was noted over the radiohumeral joint. X-ray films showed the usual large area of osteochondritis of the capitulum associated with accelerated growth of the epicondyle.

The patient had had apophysitis of both heels at age eight, a condition which should be interpreted as definite warning of impending danger with the first complaint of elbow soreness. Conservative treatment with complete rest from throwing was recommended in the hope that the lesion would heal.

CASE 9. A 9-year-old boy who had been pitching for a year, throwing curves, denied having elbow pain, but not convincingly. When he reported for routine x-ray examination for the survey, an early osteochondritic lesion (Figure 7) was noted. After four months of complete rest of the arm, the lesion healed completely. This lesion would no doubt have



Figure 5 (Case 6).—Osteochondritis of capitulum of right humerus with head of radius enlarged as compared with left.



Figure 6 (Case 6).—Exfoliation of articular cartilage of opposing surfaces of the capitulum (right), and head of the radius (left) as seen at operation.

progressed to the advanced stage seen in the previously reported cases except for chance discovery in a routine survey, which calls attention to its need for early diagnosis and medical supervision.

CASE 10. The patient, 19 years of age, had pitched three years in the Little League although he had had to quit because of elbow pain. At age 15, the elbow became quite painful and he could not straighten it completely. X-ray films taken at that time showed a typical osteochondritic lesion of the capitulum with the head of the radius enlarged and deformed. Operation was advised but was refused. The patient was not seen again until, at age 19, he returned with complaint of "locking" of the elbow. X-ray films showed calcified loose bodies in the joint. They were surgically removed and the deformed head of radius was excised. The result was relief of pain and good functioning of the elbow for normal non-strenuous use of the arm.

CASE 11. A 12-year-old boy who had pitched three years in the Little League, throwing curves, and also playing other positions when not pitching, developed severe pain in the elbow while pitching

in a Little League playoff game. A physician examined him, taking x-ray films (Figure 8). Complete rest was advised but the advice was disregarded and the patient's parents and his coach carried out heat treatments. The following year, during a try-out for the Pony League, the elbow pain became unbearable. X-ray films showed osteochondritis of the head of the radius. The lesion in this case is rare, only six other cases having been reported in the literature. The patient gave up playing ball and films taken two years later showed healing of lesion but with deformity of the head of the radius as compared with the opposite arm.

Although this is a relatively rare lesion, the fact that it occurred only in the throwing arm indicates that repetitious trauma was a definite etiological factor. Had medical advice been heeded with the initial onset of symptoms, the progression of the lesion could probably have been prevented.

Conclusion

This study quite clearly demonstrated the so-called Little Leaguer's elbow to be primarily a medial epicondylar epiphysitis, and less commonly an osteochondritis of the capitulum of the humerus and head of the radius.

Before the development of organized baseball programs for youngsters of this age, osteochon-



Figure 7 (Case 9).—Upper film: Early osteochondritic lesion of the capitulum of the humerus. Lower film: Lesion healed after four months of complete rest of arm.



Figure 8 (Case 11).—Juvenile osteochondritis of head of radius. Upper left film taken at onset of symptoms. Center and right films one year later and 18 months later. Lower film two years later, showing deformed head of radius as compared with opposite elbow.

dritis of the capitellum was rarely seen, and medial epicondylar epiphysitis was not described in the medical texts.

The fact that these conditions develop only in the throwing arm, leaves no doubt that the major contributing cause is excessive repetitious trauma. These conditions seem to reach their peak, symptomatologically, at the Pony League age of 13 or 14. The insidious onset, with failure to report or investigate elbow soreness earlier, would explain the misleading Little League statistics indicating negligible epiphyseal involvement. The treatment for these conditions, as in all diseases or injuries, is primarily prophylactic or preventive. The following recommendations seem in order:

1. Establish medical advisory boards at national and local levels.
2. Educate and alert parents, coaches, administrators and family physicians that these conditions do exist, that the presenting symptom of soreness or pain in this age group indicates epiphysitis and should not be treated as a muscle soreness routinely found in adult pitchers following a game.
3. Encourage youngsters to report elbow pain or soreness immediately for proper evaluation, with reassurance that doing so does not always mean that they cannot play ball anymore.
4. Discourage youngsters from practicing pitching at home before, during and after the baseball

season, as excessive throwing at this age invites trouble rather than perfection.

5. Abolish curve ball throwing at this age, as it not only puts additional strain on the elbow but encourages excessive throwing practice to perfect.

6. Shorten the playing season, especially in Southern California where it is overly prolonged.

7. Restrict pitchers to two innings per game, instead of six, until the epiphyses are completely closed. (This maturity usually occurs between 14 and 17 years of age.)

8. Divide Little League into two groups—one for 9 and 10-year-olds, the other for 11 and 12-year-olds—in recognition of the great range of size and weight of boys in the age range.

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Medicine in Society

Part III: A Role for Medicine in Modern Society

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THE PRECEDING SECTION of this inquiry into "Medicine in Society" drew attention to some vast and largely irreversible social, economic and political effects of the application of scientific advances in both medicine and society. Specialization in the function of individuals, a necessary consequence of this great progress, produces greater social, economic and political interdependence within and between both medicine and society. The problems created by these changing relationships are many and as yet they are poorly understood. But they clearly affect both medicine and our culture in most fundamental fashion. A few of the "dimensions" of modern medicine in modern society were briefly discussed. These new interdependencies among people and among functions are not to be escaped in an age dominated by science.

The net effect has been to produce a complex system, which like any complex physical, biological or social system, must sooner or later develop some order and direction within itself if it is to perform effectively. Much of what is at stake in this development is the role which the individual as such will play. In medicine, the issue is found in the survival

of individualized medical care directed by a physician whose first interest is his patient versus depersonalized statistically oriented mass medicine directed by the government or someone else "in the public interest." In society, the issue can be expressed in such terms as the social trend toward the security of conformity versus the protection and enhancement of freedom for the nonconformist; the economic concepts of free-enterprise versus the planned economy of socialism; or, in the political sphere, the extent to which the minority will be compelled to submit to the will of the majority, or perhaps vice versa.

For many reasons medicine is vitally concerned with all these problems. The preservation of freedom of expression and freedom of action for the human individual be he doctor, patient or citizen, as well as the inescapable need to find means to give order and direction to an increasingly complex biosocial system are each of the greatest importance to human health and to good medical care. The broad social responsibility of modern medicine in this modern society now requires re-examination. So far medicine has offered surprisingly little in the way of leadership or constructive advice. Yet the role which medicine will ultimately play will surely depend

This is part III of a communication in three parts. Parts I and II appeared in the December 1964 and January 1965 issues.

upon the effectiveness of its leadership and its performance at this time.

A. A Basis for Medicine's Roll

It would seem that the basis for medicine's social role must be found in the root purpose of the medical profession itself. These have been defined by the American Medical Association as "to promote the art and science of medicine and the betterment of public health." This objective implies that medicine is fundamentally concerned with the health and welfare of the human individual, that it has a basic commitment to progress, and that its social role and professional performance must be based upon its special competence in the very broad field of human biology. Concern with the human individual, commitment to progress, and competence in human biology are closely interrelated. It is suggested that together they serve as a sound basis from which to derive a role for modern medicine in modern society.

1. *The Human Individual*

The art and science of medicine are historically focussed upon the human individual and upon the maintenance and betterment of his health. The *raison d'être* of the medical profession is this human individual. The tradition of our Western culture also places a high value upon each individual life. It is this common interest which gives society its legitimate interest in medicine and medicine its legitimate interest in society.

Medicine has been surprisingly consistent in its support of what it believes best for the individual, both in its professional activities and also in the socio-economic and political positions it has taken. For example, it clearly recognizes that in most circumstances the patient is better served when the individual is treated on a personal basis and not regarded as a probability statistic. But in those situations where the individual interest is for practical purposes identical with the greatest good for the greatest number, medicine supports collective or mass approaches to medical care. This has generally occurred in situations where the possible need for medical care may exceed the capability of personal medicine to meet the demand, as in military medicine, disaster medicine, prevention and control of epidemics, and in certain situations where for economic or geographical reasons medical care is best approached on a less personal or collective basis. But any mass or collective program must tend toward emphasis on the statistical probability, at the expense of the statistical improbability, and this may be contrary to the particular need of any given individual at any given time. Personal medicine, however, aims to give equal attention and service to

both the probable and improbable in individualized care. Support of personal medicine is, therefore, a logical position for the medical profession to take in the interest of each human individual.

This ongoing concern with the health and welfare of the human individual underlies the attitude of medicine toward such things as "free choice" for both doctor and patient, its belief that the doctor should be working for the patient and not someone else, as expressed in the individual responsibility and fee-for-service principles, and its resistance to "third party" interference, which of necessity introduces a collective interest into what in its highest expression should be an individual and personal relationship. But as the health and welfare of the human individual develop wider and wider ramifications in society, many of these traditional attitudes require modification in a changing situation. But for each instance, the position of medicine can be logically based upon what it believes is best for the human individual in the given circumstances.

Society, on the other hand, has tended to substitute the majority interest, the collective interest or the "public interest" for the individual interest. This gradual shift from an earlier emphasis on individual rights toward the present and increasing emphasis on collective rights was predicted by de Tocqueville who clearly pointed out over a hundred years ago that rule by majority vote inevitably strengthens conformity at the expense of an individual's freedom to be different. Collective interests also are more easily organized into pressure groups. These tend to dominate and suppress "uncollectible" individual interests in independence and personal freedom which do not so easily band together to express their "collective" interests in individuality and freedom to be different. These trends have perhaps been accelerated by the social impact of the scientific revolution on a necessary interdependent society. In any case, even the courts now tend more and more to support conformity at the expense of freedom, and the right of organized collective interests even though a minority, to impose their will upon all.

In this political setting, medicine finds itself tending often to support "unpopular" uncollectible interests of the individual as such, rather than the better organized and therefore more "popular" collective interests. Thus many physicians find themselves in ideological and political opposition to such things as compulsory retirement at the age of 65 regardless of capability, and in favor of such things as right-to-work laws, less government regulation of daily living, and less government spending and more take-home pay for the human individual.

The common need of everyone, whether doctor, patient or just plain citizen, for individual freedom and self-expression is a "collective" self-interest

which nowadays seeks more effective recognition and craves more adequate leadership. It also happens to be essential to the best medical care and to the betterment of human health. This common interest of medicine and the individuals who comprise society *could* become a basis for extraordinarily effective socio-economic and political action. The county, state and national organization of medicine *can* give "collective" expression to "uncollectible" interests shared by all individuals. Positions taken by medicine, when based upon its professional knowledge and the needs of all individuals and when soundly conceived and effectively presented, may be counted upon to gain popular support. The full possibilities of collectively representing the uncollectible individual interests of all have yet to be explored.

2. Progress

The commitment "to promote the art and science of medicine" is fundamentally a commitment to progress. To the physician progress means advances or improvement for the human being, for society, or both, in a biological and cultural sense. This meaning does not refer to the "progress" of any conceptual social, economic or political theory, doctrine or belief in the sense in which the words "progressive" and "liberal" are commonly used in the present scene.

The physician-scientist knows that biological, scientific and cultural progress is based on the outcome of many trials of new and different ideas, rather than conformity to conceptual theory. Most of these experiments fail, but some succeed. Those which fail are a price which is paid for the advantages gained from those which succeed. Progress is most rapid when there are many experiments. It is slower when they are restricted and infrequent. Thus, medicine's commitment to progress through experimentation places it not only squarely in the social struggle between individual freedom and collective conformity, but also between advocates of the relatively unplanned free enterprise system, and those who would plan and carefully regulate society. Medicine, therefore, also finds itself in the midst of the semantic confusion which currently surrounds the use of the words "progress," "liberal," "freedom," "security," "free enterprise," "socialistic," "conservative," "reactionary" and the like.

In its commitment to progress through experiment, medicine also maintains its primary concern with what is best for the individual. This is true for scientific experiments where careful attention is given to the safety and welfare of the individual. It has also been true for experimentation and research in methods of financing medical care and

of delivering medical services, where it has resisted and opposed experiments which it felt could not be in the best interest of the individual; or which would lead to regulation, restriction and control, which would in turn prevent further experimentation; or which once undertaken could not be either abandoned or reversed. It is this aim which has placed medicine in diametric opposition to much present day "progressive" and "liberal" thinking which in reality is perhaps more truly "reactionary," in the sense of inhibiting progress, than "liberal."

Is it not this support of freedom to experiment and freedom to progress which makes a free and outspoken medical profession so often an anathema to those who would impose their conceptual sociologic, economic and political theories upon society? Perhaps medicine can capitalize to a greater extent upon this commitment to true biological and cultural progress.

3. Competence in Human Biology

Medicine's competence in the biology of human nature and human behavior exceeds that of any other profession. It is this knowledge of human biology which is brought to bear in medical practice and medical care. But this same human nature and human behavior is an essential ingredient of any social, economic or political system. It is noteworthy that many biological principles, such as birth, growth, maturation, form, adaptation, senescence, death and evolution through survival of the fittest, apply not only to the species but also to human institutions, human society and its culture. It would appear that competence in human biology is increasingly important in the field of social interrelationships in modern society.

The doctor, who is the biologist for man and his society, therefore has many new as well as old responsibilities. There are responsibilities to the individuals of the species who alone can give rise to real progress; responsibilities for encouraging conditions and circumstances under which biological man can make progress without damage to himself, to his fellow man or to his species; and there are new responsibilities in broad and fascinating new areas of biological and cultural evolution which are rapidly becoming possible because of scientific progress. Clearly, the physician must play a central role in these developments and make certain that the conditions for individual human fulfillment and further progress remain favorable.

It is suggested that concern with the human individual, commitment to progress and competence in human biology are the foundations upon which medicine's role in society can be built.

B. A Crucial Decision for the Medical Profession

In this inquiry the term "medicine" has been used broadly and somewhat loosely. It has been used broadly to encompass many very old and some very modern facets of the relationship between society and those to whom society gives responsibility for its health and welfare. It has been used loosely to include not only medical science and technology, but also the medical profession, medical practice and all the ramifications of medical care in modern society. It is quite clear that in this broad definition "medicine" does in fact play a central and utterly essential role in any society. It is also clear that although "medicine" may change its shape and form, this central and essential function of "physician" in society can never really be destroyed.

But it is not so clear as to just where in the shape and form of modern "medicine" lies the responsibility for the health and welfare of those persons who comprise society. It is not certain just who is the responsible "physician" to our modern culture. The physician in his nostalgic traditional role seems to have all but disappeared, and the public senses that somehow society has lost its doctor. Understandably, and like any patient, society is now seeking a "physician" to fill its needs and one whose performance will prove satisfactory. There are a number of candidates. None has yet been selected.

Curiously, and perhaps portentously, the medical profession itself is divided concerning the role it should play. It has been immersed in, in fact almost inundated by, the great wave of science and technologic advance. Perhaps this is the reason many doctors see the role of medical profession as confined quite simply to the science and technology of medicine. But these physicians do not seem to realize that this must inevitably make technicians of doctors and that this in turn has inescapable professional, social, economic and political consequences both for the physician and for society.

Yet the profession still clings in principle to the traditional concept of its role in society. This is evidenced by its instinctive and sometimes violent reaction to any attempt by others to assume any of the prerogatives of this traditional role. As a result a number of major needs of society have not been met and a vacuum of performance has developed. Social, economic and political pressures will inevitably insist this vacuum be filled. The mantle of the "physician," like any mantle of leadership, eventually passes from those who do not perform to those who do.

The decision to be made seems clear. Is the medical profession to fill this vacuum of leadership and perform, or is it to relinquish its role of "physician" to society and confine its area of competence and performance to the science and technology of medicine? If this latter occurs then the role of "physician" and most of the responsibility for "medicine" in society must pass to other hands and the doctor of medicine will simply become a technician in medical practice and at best a technical advisor on the scientific aspects of medical care. The large responsibilities of "physician" will necessarily be assumed by specialists in other fields such as perhaps health education, public health, health care economics, social welfare or some other category of social or political scientist.

At such a moment of decision it is wise to be guided by basic goals and objectives. If the role of the medical profession in modern society is truly to be founded upon its concern with the human individual, its commitment to progress and its competence in human biology, then its decision is clear. These responsibilities cannot be carried out by a mere technician in medical science. They can only be discharged by whoever is to become "physician" to society.

It is the thesis of this discussion that the medical profession should and must assume this central role in society. This crucial decision cannot be put off much longer.

C. A Suggestion for Organized Medicine

The instrument through which the doctor and the medical profession can fill the role of "physician" to society is organized medicine. If organized medicine is to play this role, the physician, through organized medicine, must demonstrate that by exercising freedom, by utilizing the free enterprise system and by accepting responsibility, a free medical profession can solve the social problems created by the scientific revolution as fast as they appear. This is quite an order in an organization comprised of 20,000 (in California), 200,000 (in the United States) highly independent, highly individualistic, highly educated and hard working dedicated doctors. Yet these rapidly accumulating problems must be solved within this voluntary, free enterprise system or society will demand that they be solved by government regulation and control. The ultimate decision will be based upon whether free enterprise organized medicine can perform satisfactorily.

Perhaps it is time for organized medicine to come to grips with these realities. It would seem necessary that it first address itself to the difficulties

which the free, voluntary democratic political system has in finding acceptable solutions to the complex social and environmental problems which are the direct result of the impact of scientific progress. Perhaps competent in the field of human biology, it can borrow for itself a leaf from the book of biological evolution and apply some of its principles to the evolutionary process of which it is a part. In the animal kingdom there are still free and independent cells, but the higher forms of life have found it necessary to develop specialization and interdependence among cells. These more complex biological systems have made possible advanced forms of life and of living. A major key to this improved performance among specialized and interdependent cells has been the development of the specialized functions of communications within the organism and with its environment, and of a mechanism to deal with an environment which changes from moment to moment, from day to day and over much longer periods of time. This important mechanism is a brain or an intelligence. The parallel to the problems of modern medicine in modern society is close. Medicine too has its free and independent cells which are yet specialized and interdependent. Perhaps organized medicine too needs some sort of better intelligence system to deal with its internal and external problems in a changing environment, to recognize them when they occur, and hopefully to anticipate them before they arise. At the moment organized medicine somewhat resembles an amoeba, moving every which way and almost without direction, except when strongly attracted or strongly repelled.

Doctors are intelligent and as homogeneous as any group of highly educated, free and independent generally hardworking and dedicated individuals can be. Perhaps there is a real opportunity to study, experiment with and strengthen the democratic political system within the framework of organized medicine. If successfully accomplished this could have profound effects upon both medicine and society.

D. Assets for Leadership in Medical Care

Once the decision is made to assume a role of leadership in medical care, and the very real difficulties of adapting the internal "biosocial" structure of medicine to the ecological requirements of modern medicine in modern society have been overcome, the many assets of modern medicine can be brought more effectively to bear in support of medicine's leadership, and the role of "physician to society" can become a reality for organized medicine. A number of these many assets are worth noting.

1. Medicine has a proven record of superbly applying its scientific knowledge in daily patient care.

2. Public interest in medicine is very great. There is no need to create a demand or a market.

3. Medicine is an important instrument through which the public can immediately and directly realize tangible personal results from its tremendous financial and emotional investment in scientific progress.

4. Physicians are highly respected in the community. They are intelligent and educated. They have a common goal and a traditional selfless interest in bettering the health and welfare of people.

5. Medicine has unusual communications resources. The medical profession has direct and intimate contact with all cultural groups. It has roots and branches which reach into virtually every aspect of society. Its members are skilled in convincing individuals to do what is in their best interest. Its subject matter is readily adaptable to and widely used by mass communications media. Communications channels exist between doctor and patient, between doctor and citizen and between organized medicine and the public.

6. Medicine and the public have a common interest in the human individual, his health, his welfare, his individuality and his freedom to progress. Public opinion and the voter at the ballot box are strong determinants in the evolution of our society. The voter and public opinion are influenced by emotion, beliefs, information, personal experience and by what other people think. These influences are transmitted by communication. Medicine and the public have a common interest which can provide the framework for the communication of information, experience and advice based on competence in the broad field of human biology.

7. Organized medicine is perhaps paradoxically in the position of being a relatively strong "collective" national organization, with state and county components whose roots and branches reach into almost every facet of life, yet whose primary concern and responsibility is with the health and welfare of the "uncollected" individual, with all this implies in modern society. Medicine has yet to develop the full meaning and full power of this perhaps unique position in our society.

8. In "organized medicine" doctors, concerned with the individual, committed to true biological and cultural progress competent in human biology and dedicated to the betterment of health, are banded together in fairly cohesive societies in over 1800 counties across the nation. These are federated to form the state medical associations which in turn

comprise the AMA. Inherent in this organization of highly educated and highly individualistic yet dedicated physicians must lie the capability to preserve what we know as freedom and yet solve the social problems created by the impact of scientific progress in medical care, if indeed this can be accomplished within a democratically constituted professional organization.

9. To regain its position of leadership as "physician to society" medicine will probably need to adapt its structure to be more fit in its new and changing environment, and also adapt many now unfamiliar disciplines in the social and behavioral sciences to the needs of patients, to the health and welfare needs of the individual in society and of society itself. But this process of adapting itself and of adding new disciplines of knowledge to its armamentarium is nothing new for the medical profession. It has done this from time immemorial, and it can do it now.

E. Conclusion

In conclusion it is suggested that organized medicine address itself to the responsibilities of modern medicine in modern society, and arrive at a determination of the role which it wishes itself to play. It should decide whether it will perform as "physician" to society or abdicate this essential function to the most powerful contestant. It should also decide whether it will assume the responsibility of resolving the social problems resulting from scientific progress in medicine and in society by strengthening order, direction and leadership within the dimensions of the free enterprise system or whether, through disinterest, disunion, procrastination or failure to perform, it will in effect bring about government regulation and control by its own default.

The future complexion, not only of medicine, but of our society itself, may very well hang upon these decisions and what is done to implement them.

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CASE REPORTS

Carcinoma of the Colon Complicating Ulcerative Colitis with Five-Year Survival

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THE GREAT PESSIMISM that surgeons generally have with regard to patients who have carcinoma complicating ulcerative colitis prompted this study. The present case exemplifies many of the features reported when these conditions co-exist, but it is exceptional in that the patient had two extensive carcinomas yet was still living more than five years after operation.

Report of a Case

A 42-year-old, mentally retarded white man entered Riviera Hospital May 25, 1959. He had had almost constant diarrhea, with ten to 12 bowel movements a day since age 14, and in that time he had had essentially no treatment or medical observation.

No abnormalities were noted on palpation of the abdomen. Sigmoidoscopic examination showed diffuse friability and inflammation of the mucosa and a polypoid lesion at the 22 cm level. Biopsy of a specimen from the lesion was reported as adenocarcinoma.

The hemoglobin content on admission was 9.3 gm per 100 ml of blood. X-ray examination with

barium enema showed an absence of haustrations and shortening of the whole colon. There was a large filling defect in the right transverse colon and also a defect in the sigmoid colon. The terminal ileum was dilated, the walls were very smooth and there was an absence of mucosal markings.

At operation the masses in the hepatic flexure and in the sigmoid colon were observed, and there was no evidence of gross spread of carcinoma outside the field of surgical excision. A total abdominal colectomy (including about two and a half feet of terminal ileum) and an end-to-end ileo prostostomy four inches above the anus were carried out.

Pathological examination of the resected specimen showed the ileal mucosa to be irregular, focally flattened and somewhat granular for the distal 11 cm. There was a polyp of the cecum (microscopically identified as a pseudopolyp with inflammation of the stalk). In the right colon there was an 8 x 12 cm villous mass which, histologically, was observed to be a fairly well differentiated adenocarcinoma extending into the muscularis. Finally, 12 cm from the distal end of the resected colon there was a 5 cm mass which microscopically was seen to be a well differentiated mucus-secreting adenocarcinoma extending into the muscularis. There was no lymph node metastasis.

In the more than five years since the operation the patient has passed two or three semi-formed stools each day and he has not had any anemia or loss of weight. Sigmoidoscopic examination, including biopsy of the rectum and anastomotic area, has been done a number of times and no evidence of residual or recurrent carcinoma has been observed.

Discussion

The reported incidence of recurrence of carcinoma of the colon in patients who have ulcerative colitis is extremely variable, depending upon whether the group studied was treated conservatively (in which case the incidence is determined mainly from autopsy statistics) or treated surgically (in which case the group is likely to be heavily weighted with patients who were deemed likely to

have carcinoma). Slaney and Brooke¹⁵ studied 358 patients with carcinoma in a total group of 9,469 patients with ulcerative colitis and found an incidence of 3.8 per cent, in contrast to the incidence of 0.06 per cent of carcinoma of the colon in the general population. Stated in another way, Shanks and Bagen¹⁴ said that carcinoma of the colon is about 30 times more common in patients with ulcerative colitis than in the general population.

However, if the patient has had ulcerative colitis for ten years or more, there is a 25 per cent to 50 per cent incidence of carcinoma in surgical series:

<i>Investigator</i>	<i>Year</i>	<i>Per Cent with Carcinoma</i>
Cattell and Colcock ³	1955	45.5
Consell and Dukes ⁴	1952	36.0
Lyons and Garlock ⁵	1951	28.0

The longer the duration of ulcerative colitis, the greater the incidence of carcinoma. For example, Shands and Bagen¹⁴ found an average duration of 15.3 years in 73 cases and only 11 per cent of the patients had had carcinoma less than five years and 24 per cent less than ten years. Furthermore, there appears to be a distinctly higher incidence of carcinoma if the patient had symptoms of ulcerative colitis before the age of 16 years.^{10,12,17} The average age at the time of diagnosis of carcinoma is apt to be as much as 20 to 30 years younger than that found in the general population affected by cancer.^{13,15,17} Slaney¹⁵ reported an average age of 41.1 years in 112 cases of carcinoma in patients with ulcerative colitis as contrasted with an average age of 63.2 years in 710 cases of carcinoma of the colon in the general population. Most investigators¹³⁻¹⁷ report an almost equal incidence of carcinoma in men and women with ulcerative colitis, in contrast to the usual sex incidence of two males to one female for carcinoma of the colon and rectum in the general population.

Many theories⁶ have been advanced to explain the malignant degeneration in ulcerative colitis. Probably the most tenable, as expressed by Kasich, Weingarten and Brown,¹¹ is that the repeated destruction and regeneration of mucosa eventually gives rise to atypical cells and then carcinoma. Dukes and Lockhart-Mummery⁸ emphasized that the regeneration of epithelium is in excess of normal and there is an abundant "vasoformative" tissue to support growing epithelium. Dukes⁷ noted that fragments of mucosa may become buried in submucosa or muscularis, and he conjectured that this misplaced mucosa may be a predisposing factor in the development of malignancy. Brooke² pointed out that many other conditions in which epithelium is debased by either infection or scar may eventually give rise to carcinoma—for example, chronic

leg ulcers, ulcers associated with burns and chronic sinus tracts.

Despite the high association of pseudopolyps and carcinoma (36 per cent reported by Bagen and Gage,¹ 73 per cent by Goldgraber and coworkers⁹), most observers believe that pseudopolyps in themselves have no greater pre-malignant potential than the remainder of the abnormal colonic mucosa.

Pathology

Slaney and Brooke¹⁵ reported that it may be difficult to recognize small areas of carcinoma with the naked eye in the resected specimen. Carcinomas associated with ulcerative colitis may show wide submucosal spread. About half of the cases show multicentricity of carcinoma,^{14,15} as contrasted with an incidence of 4.7 per cent¹³ of multicentricity of carcinoma of the colon developing in the general population. The multiple carcinomas may have a differing histologic appearance, and there is a greater incidence of mucoid (colloid) carcinoma (12 per cent).¹⁶ There is about an even distribution of carcinomas throughout the whole colon, without the usual higher incidence in the rectum and sigmoid, but there appears to be a peculiar predilection for origin from the appendix.¹⁶ There have also been isolated reports of squamous cell carcinoma² and lymphosarcoma¹ associated with ulcerative colitis. The inflammatory, vascular base of ulcerative colitis on which carcinoma develops, produces not only early submucosal spread and early hematogenous and lymphatic metastases, but also early, direct extension through the wall of the colon and over peritoneal surfaces. Tidrick¹⁷ reported widespread peritoneal metastasis in four of six cases, and Rosenquist and coworkers¹³ reported that in only 11 of 26 patients was resection of any kind possible.

Diagnosis

Carcinoma of the colon developing in a patient with chronic ulcerative colitis is pernicious in that it frequently develops after many years of apparent remission, and the improvement may be radiological as well as clinical.¹³ The improved conservative treatment of ulcerative colitis with antibiotics, steroids and blood may be conducive to these protracted periods of apparent remission—and eventually a higher incidence of carcinoma.

The only symptom strictly referable to the carcinoma is pain resulting from obstruction or perirectal extension, which indicates advanced carcinoma. Furthermore the usual diagnostic aids are often not very helpful. There is not the usual predilection of carcinoma to develop in the rectum or sigmoid, thereby making a larger proportion of cases accessible to sigmoidoscopic examination. The

stenosis and friability caused by ulcerative colitis may further add to the difficulty and hazard of sigmoidoscopy and biopsy. Radiologically, the distortions caused by stenosis and pseudopolyp formation may lead to a false impression of carcinoma; conversely, the carcinoma is apt to be very focal or sessile and superficially spreading, making it very difficult to demonstrate. Rosenquist and coworkers¹³ expressed belief that x-ray evidence of shortening of the colon may give premonitory evidence of developing carcinoma. Goldgraber and coworkers⁹ reported over 40 per cent failure to detect cancer by radiological means.

Treatment

In the majority of these patients carcinoma is so far advanced that even palliative resection is impossible. When feasible, most observers^{2,14} favor proctocolectomy and ileostomy rather than ileo-proctostomy. This preference for including the rectum is based not only on the chances of carcinoma developing in the rectal stump, but also on doubts that the ileo-proctostomy would function satisfactorily over a long period. We elected ileo-proctostomy in the present case because of a feeling that the patient's inability to care for an ileostomy himself would, perhaps, require institutional care.

Prognosis

In 1959 Slaney and Brooke,¹⁵ in a review of the literature, found that of 304 patients with carcinoma associated with ulcerative colitis only 13 survived five years or more, making a five-year survival rate of 4.2 per cent. In his own series, Brooke² reported seven of the twenty-five patients with ulcerative colitis and carcinoma were still living, but in none of these seven cases was the carcinoma diagnosed preoperatively, and in all seven the lesion was "probably early." Similarly White (cited by Brooke²) reported eight early survivors, in none of whom was the diagnosis made preoperatively. Rosenquist¹³ reported that 22 of 26 patients with carcinoma in association with ulcerative colitis were dead within the first year following diagnosis of the cancer. In a unique series by Bagen and Gage¹ 178 patients with ulcerative colitis and carcinoma were seen at the Mayo Clinic between 1913 and 1958. Operations for cure were performed in 101 cases, with 32 patients surviving five years or more.

Conclusion

The chances of carcinoma developing in patients who have had ulcerative colitis for ten to twenty years is about one in three, irrespective of a remission of symptoms. There is great difficulty in diagnosing curable carcinoma associated with ulcerative colitis on the basis of either change in symptoms,

physical examination or barium enema. Generally there is a very poor prognosis reported for five-year survival, especially when the carcinoma attains definite demonstrable proportions.

In view of the above observations, we have to agree with Brooke,² Rosenquist¹³ and others that colectomy is indicated if the patient has had ulcerative colitis for more than ten years (especially if symptoms of ulcerative colitis started before age 20) with the permanent radiographic changes of ulcerative colitis (especially, permanent shortening of the colon). If the surgeon elects abdominal colectomy and ileo-proctostomy instead of proctocolectomy and ileostomy as the treatment in the individual case, permanent follow-up with frequent proctoscopic examination is necessary.

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Osteotomy of the Cervical Part of the Spine for Ankylosing Spondylitis with Severe Deformity

EDWIN G. BOVILL, JR., M.D., *San Francisco*

OSTEOTOMY OF THE SPINE, first described by Smith-Petersen⁶ in 1945, has since been done in many areas. Experience with this procedure in the United States is described by McMaster,⁵ in France by Herbert,² and in Great Britain by Adams¹ and Law.³ Osteotomy of the cervical part of the spine was first reported in 1953 by Mason, Cozen and Adelstein,⁴ who used the procedure in a patient with ankylosing spondylitis with deformity. Herbert² reported three such procedures in a series of 42 cases, and undoubtedly there have been other cases in which it was used but not reported. Usually the lumbar part of the spine is the area approached in problems of this general type.

The case report given here is an example of the use of osteotomy of the cervical part of the spine in a patient with maximum deformity.

Report of a Case

A man, 55 years old, entered San Francisco General Hospital on March 23, 1963, with congestive heart failure, probably secondary to arteriosclerotic heart disease with auricular fibrillation. He responded quickly to digitalization and other supportive measures. He had a severe kyphotic fixed deformity of the cervical and lumbar regions of the spine, his chin clearing his sternum by about one inch. When walking, he was able to see ahead by looking sideways.

On March 27, the patient fell while walking in the ward and received a basilar neck fracture of the left hip. On April 11 internal fixation of the hip



Figure 1.—Severe kyphosis bringing patient's chin in contact with sternum.

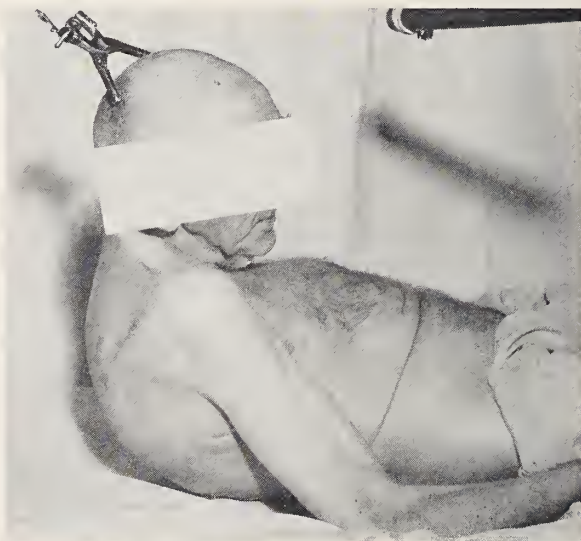


Figure 2.—Crutchfield tongs in skull for traction to hold chin away from sternum—a position not maintained when traction was relaxed.

Chairman's Address: Presented before the Section on Orthopedics at the 93rd Annual Session of the California Medical Association, Los Angeles, March 22 to 25, 1964.

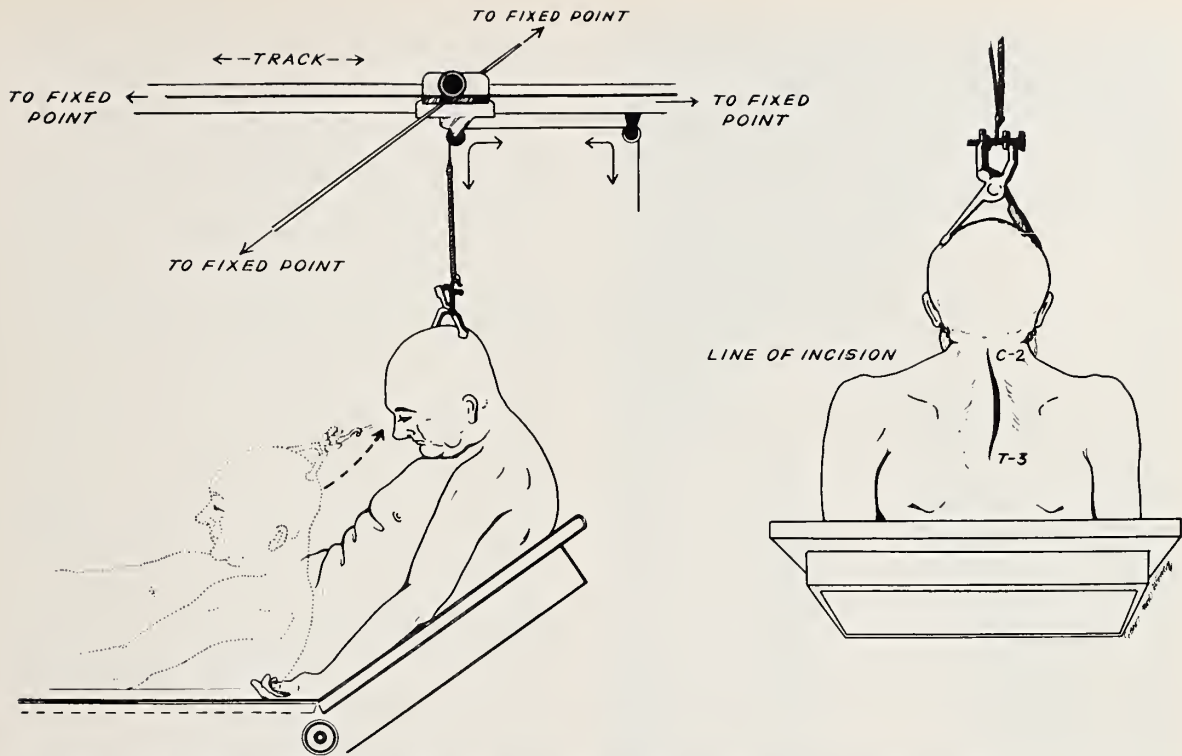


Figure 3.—Method of maintaining position of patient on table to give access to operative site.

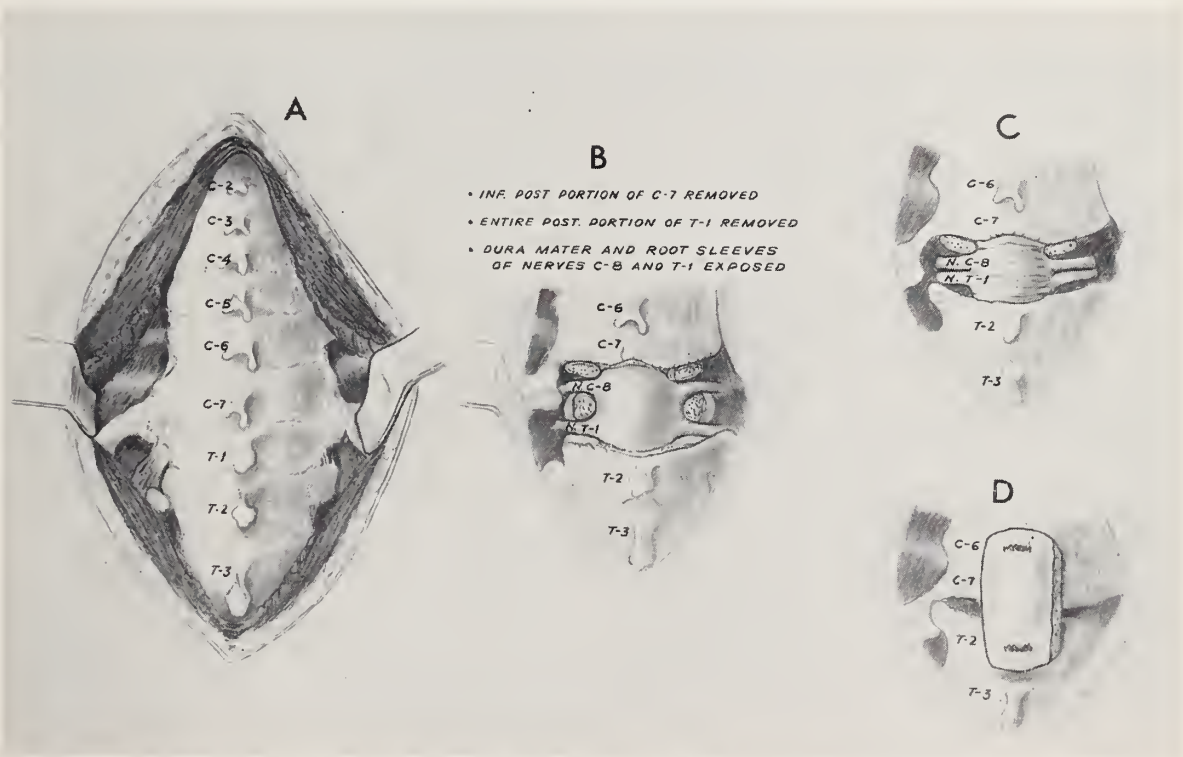


Figure 4.—Stages of operation. *A*, standard exposure of spines and lamina, exposing continuous sheet of bone. *B*, inferior portion of seventh cervical vertebra and entire posterior portion of first thoracic vertebra removed, exposing dura mater, and root sleeves of eighth cervical and first thoracic nerves. *C*, the lamina and both pedicles of the first thoracic vertebra were completely removed so that the eighth cervical and first thoracic nerve roots could approach one another as the neck was distended. *D*, use of bone chips and stainless steel wire to aid stability.



Figure 5.—Patient after operation.

was performed with the patient under spinal anesthesia; a Smith-Petersen nail and Thornton side plate were used without complication.

On April 22 it was noted that the patient's deformity had increased, his head having dropped so that his chin was in contact with his sternum (Figure 1). He could no longer open his mouth and could take nourishment only in liquid form through a straw. Pressure was sufficient to create pressure ulcers on both the mandible and the sternum, the ulcers extending to the bone at each site. With skeletal traction through Crutchfield tongs in the skull, it was possible to hold the chin one inch from the sternum, but this position could not be maintained when the traction was removed (Figure 2). It became apparent that traction would not result in sustained improvement and that accumulation of secretions in the lungs would probably drown the patient unless the deformity was corrected.

Osteotomy of the cervical part of the spine was performed on June 11, 1963. First, with topical

anesthesia of the pharynx, an endotracheal tube was inserted through the nose, and then general inhalation anesthesia was established. The deformity was such that the operative area could be approached satisfactorily with the patient supine (Figure 3). Exposure of the spines and laminae, from cervical segment 4 to thoracic segment 3, was done in standard fashion. A continuous sheet of bone covered both the laminae and the interlaminar spaces. The lamina and both pedicles of thoracic vertebra 1 were completely removed so that the eighth cervical and first thoracic nerve roots could approach one another as the neck was extended. The spine and inferior one-third of the lamina of the seventh cervical segment were removed. Manual extension of the head on the trunk resulted in osteoclasis of the body of the first thoracic vertebra and adequate correction of the deformity. A stainless steel wire was passed through the spinous processes of the sixth cervical and the second thoracic vertebrae circumferentially in order to aid initial stability. Chips from the removed bone were placed at the posterior end of the closed osteotomy site (Figure 4). The amount of correction obtained at the site of osteotomy was estimated at 50 degrees.

Skeletal traction was continued and a modified Minerva plaster jacket was used for the first six weeks postoperatively. Protection was then maintained by a Minerva jacket for six additional weeks. The patient began to walk three and a half months after operation while wearing a brace. He is still wearing a brace and is ambulatory, the correction being maintained (Figure 5).

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Report of the SCIENTIFIC BOARD

Halothane (Fluothane®)

INQUIRIES as to the use and the safety of the anesthetic agent halothane (Fluothane®) having been received, the Committee on Scientific Information of the Scientific Board has prepared the following statement.

Halothane is a potent anesthetic agent that may be used to provide any degree of anesthesia without supplemental agents, although it is not often given alone. Like almost all useful drugs, it is not without danger.

The chemical formula is 2-bromo-2 chloro-1:1:1-trifluoroethane. It is a liquid with the following physical properties: It is nonflammable and nonexplosive in the concentrations used in clinical anesthesia; the specific gravity is 1.86 at 20°C; the boiling point is 50.2° at 760 mm of mercury; it has vapor pressure of 241.5 mm of mercury at 20° C; solubility in water is 0.345 parts in 100; and the oil-water solubility coefficient is 330.

In practice halothane is usually deliberately combined with other drugs to afford deeper anesthesia or to increase relaxation. It must be given in special vaporizers and by competent anesthetists who are thoroughly familiar with all its actions. The safest means of vaporization at present is with the Fluotec®* apparatus, which is temperature-compensated and flow-compensated, or with one of the devices† in which oxygen is bubbled through the agent and then diluted with an additional quantity of oxygen and possibly nitrous oxide. It is usually administered by either non-rebreathing or the partial rebreathing techniques and only rarely in a completely closed system.

Since halothane depresses the respiratory center, it is necessary to assist or control respirations in every case in which it is used.

Bradycardia and hypotension result from (1) a depression of the myocardium, (2) an increase in the vagus tone on the pacemaker and (3) peripheral vasodilatation. As the heart is sensitized to epinephrine and similar drugs which may then produce cardiac arrhythmia, it is preferable to avoid this combination.

Halothane causes relaxation of the uterus and should, therefore, probably not be used in obstetrics except when a very light stage of anesthesia will suffice or when uterine relaxation is desired.

Prepared by the Committee on Scientific Information of the California Medical Association.

*Made by Cyprane, Ltd.

†Copper Kettle (Foregger Company), Vernitrol (Ohio Chemical Company).

Like ether, halothane supplements the relaxation of curare and its congeners, and for that reason relatively smaller amounts of these relaxant agents should be given with halothane. As an alternative, succinylcholine chloride might be used instead of the curare drugs for relaxation in cases in which halothane is used.

In a few cases, use of halothane for anesthesia has been followed by hepatitis and jaundice. The incidence is apparently extremely small (about one in a million) and a causal relationship has not been established.

Halothane has proven to be a very satisfactory anesthetic for patient, surgeon and anesthetist when used with care and complete understanding of its pharmacologic properties.

Warning— Tetracycline and Pregnancy

THE COMMITTEE on Maternal and Child Care of the CMA sounds a warning for all physicians caring for pregnant patients to use extreme caution when considering the use of tetracycline intravenously in the treatment of infections in pregnant women until further studies are available.

There have been two recent reports in the literature^{1,2} describing fatty metamorphosis of the liver as the cause of death in pregnant patients with pyelonephritis who were treated with large intravenous doses of tetracycline. Recently, an additional case (as yet unreported) which seems entirely similar in course and fatal outcome, has been described in California.

The typical case is one of a pregnant patient, usually in the latter half or immediately post-partum, with typical symptoms and signs of acute pyelonephritis, who is admitted and, after appropriate diagnostic study, given large doses (3 to 5 grams) of tetracycline intravenously daily for several days. The patient at first improves; then, after three to five days, jaundice and severe vomiting develop, requiring parenteral fluids to prevent fluid and electrolyte imbalance. Typically, the course is then rapidly progressive, with acidosis, azotemia, hematemeses, melena and hypotension terminally unresponsive to treatment. The entire hospital stay of these patients from admission to death has been short—five to thirteen days.

COMMITTEE ON MATERNAL AND CHILD CARE
OF THE SCIENTIFIC BOARD

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EDITORIAL

CMA Plan for Health Care for the Aged

ON JANUARY 9, Doctor Donovan F. Ward, president of the American Medical Association, announced a new proposal for the provision and financing of health care of the aged across the country. Acting swiftly, the California Medical Association announced its plans for implementing the proposal in this state. The program and an explanation of the reasons for it were set forth February 1 by Doctor James C. Doyle, CMA president, in a statement to all news media in California.

First calling attention to the California Medical Association's long-standing policy that "high quality medical care should be available to all persons in this state, regardless of race, creed, color, or financial status," Dr. Doyle continued:

"As physicians, we recognize that our responsibilities go far beyond the essential task of providing personal care for individual patients. We are intimately involved in many general problem areas relating to the health of the people of this state—among them the availability and cost of medical care. The unique problems of financing medical care costs of the elderly have been of most urgent concern to us.

"Thanks to ever-accelerating medical advances, people are living longer. With the pleasures of longevity, however, certain problems of long life also occur. Older people are susceptible to the illnesses inherent in long life. Many older people face longer periods of medical and hospital expense than in earlier years. Our elderly are often without the support of family at a time when they need it most,

and are vulnerable to inflation because of the fixed nature of their incomes.

"We are as aware of these developing problems as we are of problems of heart disease and cancer. In the past we have initiated and consistently supported measures designed to provide adequate medical care for the elderly—whether these measures were in the form of expansion of voluntary health insurance availability and coverage or in partnership programs between voluntary organizations and state and local government for persons unable to provide for themselves.

"We are recommending that the State Legislature approve the California Plan of Medical Assistance for the Aged embodied in a bill sponsored by Assemblyman Jack T. Casey. Under this plan, we recommend that prepaid comprehensive medical care—including payment for hospitalization, nursing home and physicians' bills—be provided for persons over 65 whose limited incomes make it impossible for them to pay costs of major illness from their own resources. I emphasize the term "comprehensive care."

"Such a prepayment program, financed by federal and state matching funds, could be administered by voluntary health insurance or prepayment organizations which would receive premiums from state government for the eligible beneficiaries. We believe that this prepayment concept for comprehensive care of the elderly on a state-wide basis would eliminate much of the red tape and the stigma of charity attached to existing health and welfare programs.

"A simple income statement could be used as a basis for eligibility—the certification to be made even before illness strikes. State government, after estimating the number of potential recipients, could pay—with state and matching federal funds—group premiums to the designated insurance carriers. The patient served in this manner by the voluntary prepayment agencies would have his hospital and physicians' bills paid for him in the same way as the patient who purchases his own insurance.

"We believe this prepayment plan is progressive and economical. It is an extremely significant proposal and it is included in Assemblyman Casey's bill which he has introduced in the State Legislature.

"This prepayment plan and other recommendations for improving the California Medical Assistance for the Aged Program are offered as amendments to the Rattigan-Burton Act which was passed by the California Legislature in 1961.

"In addition to the amendment implementing the concept of prepayment, the Legislature is being asked to eliminate the existing requirements that an elderly patient must pay for the first 30 days or \$2,000 in a private hospital before becoming eligible for benefits. If the 30 day and \$2,000 requirements are eliminated and prepayment is accepted, this would mean that coverage for an eligible elderly person would include:

"1. Payment from the first day of admission to any hospital of his choice.

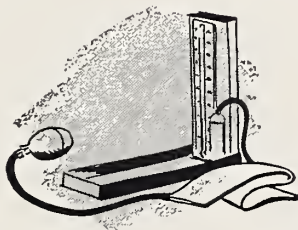
"2. Nursing home bills.

"3. Physicians' bills.

"The provision of medical care for any segment of the population is a complex problem. We recognize that these proposals will require thoughtful study, careful analysis of costs, and utmost cooperation between various voluntary agencies and state government. The physicians of this state will do their share in seeing that the program works—to the ultimate benefit of the elderly citizens of California.

"We will do everything possible to see that a dignified and economical system of health care is provided to our elderly citizens who are unable to provide for themselves.

"We believe that this California Plan of Medical Assistance for the Aged, when approved and implemented by the Legislature, will go far in resolving any remaining unmet health needs of the elderly in California."





The President's Page

The Physician and Informed Consent

THE PROBLEM of informed consent, which includes value judgments involving physicians, attorneys, the courts and the public interest, is always of deep concern to the medical profession.

The California Medical Association fully recognizes the necessity of informed consent in the treatment of patients. In question is the rigidity with which it should be defined.

California physicians feel that the definition should allow for reasonable judgment and flexibility. A recent ruling by the Kansas Supreme Court clarifying the term supports that attitude. Here, briefly, is the background to the court's ruling:

In 1963, three physicians were exonerated of all responsibility in the death of a three-year-old boy who died during a cardiac catheterization. In a lawsuit filed in Kansas, the boy's parents claimed that they had not been sufficiently advised about the risks of the procedure for them to give an informed consent.

The court ruled that they had been reasonably informed and that there was no evidence of medical error. According to the court, a physician has a duty to make a reasonable disclosure to his patient of the nature and possible consequences of the recommended treatment.

However, this does not mean that the physician is obligated to describe in detail all of the possible consequences—no matter how rare or improbable they might be.

Accepted practice in California is not to make such blanket disclosures. For example, it is not necessary for a physician, before giving a patient an injection of an accepted drug, to advise him that in rare instances anaphylactic shock might occur and result in death.

To make a complete disclosure of all facts, diagnoses or possibilities that might occur to a physician could so frighten the patient that it would constitute bad medical practice, according to the court. Physicians here are in agreement.

The physician's duty, in such instances, is limited to such reasonable disclosures which other competent medical practitioners would make under the same or similar circumstances, the court declared.

How he may best discharge his obligation to the patient in this sort of difficult situation is primarily a question of medical judgment involving the physician's knowledge of his patient.

I am happy to see the courts applying such a sound and flexible concept to medical practice. I am sure that it serves the best interests of the patient.

James C. Doyle



California Medical Association

NOTICES AND REPORTS

Council Meeting Minutes

Tentative Draft: Minutes of the 506th Meeting of the Council, Los Angeles, Airport Marina Hotel, December 12, 1964.

The meeting was called to order by chairman Anderson in the Airport Marina Hotel, Los Angeles, on Saturday, December 12, 1964, at the hour of 10:00 a.m.

Roll Call

Present were President Doyle, President-Elect Teall, Speaker Quinn, Vice-Speaker Telford, Editor Dwight L. Wilbur, Secretary Hosmer and Councilors MacLaggan, Wilson, Todd, Goel, Taw, Bullock, O'Connor, Ham, Rogers, Murray, Richard S. Wilbur, Miller, Watts, Fenlon, Kay, Kaiser, Anderson, Dozier, Grunigen, Cosentino, Shaw and, ex-officio, Sherman.

Absent for cause, Councilor Maguire.

A quorum present and acting.

Present by invitation were Messrs. Hunton, Thomas, Clancy, Collins, Whelan, Klutch, Clark, Eberlein, Moreillon, and Bowman, Doctor Miller and Mmes. Griffith and Redfern of CMA staff; Messrs. Hassard and Huber of legal counsel; Messrs. Read and Brown of the Public Health League; county executives Rideout of Butte-Glenn, Baker of Los Angeles, Bannister of Orange, Dochtermann of Sacramento, Nute of San Diego, Neick of San Francisco, Donovan of Santa Clara, Bruce of Tulare, York of Sonoma and Addington of Forty First; Doctors Hoagland and Reynolds and Messrs. Paolini, Heller, Bentley and Babb of California Physicians' Service; Robert Garrick, consultant; John Pompelli of the American Medical Association;

Doctors J. Lafe Ludwig, Donald Abbott, Nils Bolduan, Sherman Mellinkoff, Roger Egeberg, Richard Young of State Department of Rehabilitation; Doctor Harold Erickson of State Department of Public Health, Hugh Plumb, Richard Altman and Wallace Gerrie of Orange County, Donald E. Barker, Warren L. Bostick and others.

1. Minutes for Approval

On motion duly made and seconded, minutes of the 505th Council meeting, held October 31, 1964, were approved.

2. Membership

(a) A report of membership as of December 9, 1964, was presented and ordered filed.

(b) On motion duly made and seconded in each instance, three applicants were elected to Associate Membership. These were: Herbert A. Perkins, Lawrence Petz, San Francisco County; Frederick A. Fox, Santa Clara County.

(c) On motion duly made and seconded in each instance, three applicants were elected to Retired Membership. These were: Bertram E. Marks, San Diego County; Loren R. Chandler, Cavins Hart, San Francisco County.

(d) On motion duly made and seconded, reductions of dues were voted for six members for reasons of postgraduate study.

JAMES C. DOYLE, M.D.	President
RALPH C. TEALL, M.D.	President-Elect
WILLIAM F. QUINN, M.D.	Speaker
JOSEPH W. TELFORD, M.D.	Vice-Speaker
CARL E. ANDERSON, M.D.	Chairman of the Council
ALBERT G. MILLER, M.D.	Vice-Chairman of the Council
MATTHEW N. HOSMER, M.D.	Secretary
DWIGHT L. WILBUR, M.D.	Editor
HOWARD HASSARD	Executive Director
JOHN HUNTON	Executive Secretary
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3. *Report of the President*

President Doyle summarized the various appearances he had made since the preceding meeting and discussed the subjects covered by speakers at several conferences.

4. *Report of President-Elect*

President-Elect Teall reported on his appearances before component societies and other bodies since the Council meeting of October 31.

5. *Committee on Committees*

Doctor Teall presented a revised structural chart of the organization, together with the grouping of commissions and committees, including a new commission which would supervise the activities of several committees now assigned to other commissions. Questions were raised as to the assignments of the Committee on Blood Banking and the Committee on Dangerous Drugs and Drug Reactions.

ACTION: It was voted to refer these questions to the executive committee of the Scientific Board and to the committees in question, with action to be taken at a later meeting. Approved reorganization with the exception of these two referred items. Reporting at a later hour, the committee proposed that members of an ad hoc committee to develop a public and legislative program to assure all elderly Californians of high quality medical care when needed consist of Doctors Doyle, Teall, Quinn, Anderson, Sherman, MacLaggan, Bostick, Todd and Kilroy.

ACTION: Proposed ad hoc committee approved and appointed.

6. *1964 House of Delegates*

(a) Speaker Quinn reported that an ad hoc committee of the 1964 House of Delegates had recommended that the representative of the Scientific Board on the Council should be granted a vote on that body.

ACTION: Committee recommendation approved and introduction of necessary resolution in 1965 House of Delegates authorized.

(b) A list of actions of the 1964 House of Delegates, together with implementation of these actions to date, was presented.

ACTION: List approved and ordered distributed to all members of the 1965 House of Delegates.

7. *Bureau of Research and Planning*

Chairman Sherman gave a progress report on work under way in the Bureau of Research and Planning and asked authority for publication in CALIFORNIA MEDICINE of the initial report on the Role of Medicine in Society.

ACTION: Voted approval for publication.

8. *Deans of Medical Schools*

The chairman introduced Doctor Sherman Mellinkoff, dean of UCLA Medical School, Doctor Roger Egeberg, dean of USC Medical School, and Doctor Warren L. Bostick, dean of California College of Medicine. Each expressed thanks for being invited to the meeting and expressed a desire to work cooperatively with the Association.

9. *State Department of Public Health*

Doctor Harold Erickson, deputy director of the State Department of Public Health, reported on the meningococcal meningitis situation in California, especially at Fort Ord. To date in 1964 there have been 496 cases reported in California, including 116 among military personnel and their dependents. At Fort Ord there were five cases in September and eight in November. Doctor Erickson reported that all new trainees had been withdrawn from Fort Ord but that training of advanced units is continuing.

Doctor Erickson also reported on the establishment of three centers in a program of following up draft rejectees, with the idea of referring them to their own physicians for medical care indicated from their draft rejection. One center in Los Angeles is now processing about 200 men daily, one in Oakland is averaging 83 daily and one in Fresno is handling 50 daily.

Doctor Erickson further reported that the department was ready to accept the medical program of civil defense should this department be transferred from the State Disaster Office. Funds for establishment of an adequate staff would necessarily come from a revised budget but the transfer could be handled administratively.

10. *Commission on Community Health Services*

Doctor Kay, commission chairman, reported that the commission favored the transfer of the medical services of the state civil defense program from the State Disaster Office to the Department of Public Health and the allocation of sufficient budget funds to employ needed personnel. Doctor Donald E. Barker, a member of the Committee on Disaster Medical Care, presented the indications for such transfer and urged Council approval.

ACTION: Voted to approve transfer of the medical services of state civil defense to the Department of Public Health and the appropriation of sufficient funds to rebuild the depleted staff to adequate size.

11. *State Department of Rehabilitation*

Doctor Richard Young, medical director, reported that his department would gladly cooperate in the rehabilitation of draft rejectees in the program outlined earlier by Doctor Erickson.

12. *California Hospital Association*

Mr. Robert Thomas, president of the California Hospital Association, was welcomed to the meeting and expressed his desire to work in cooperation with the Association. He also outlined some of the recent activities of the hospital association.

13. *California Physicians' Service*

Doctor Paul Hoagland, chairman of the board of trustees of CPS, reported that the organization had no plans for introduction of a new substandard fee schedule but was working on the phasing out of existing memberships under schedules A and B, which respectively have less than 30,000 and 9,000 members now covered.

Doctor Hoagland also reported that the renewed membership enrollment period of Western 65 would probably result in about 10,000 new members.

Doctor T. Eric Reynolds, CPS president, reported on the insuring problems raised by the making of clinical profiles as admission tests for hospitalization and by the provision of laboratory services which may not be related to the condition of the patient. He asked consideration of these problems for the guidance of CPS and other insuring mechanisms.

14. *Medical Executives Conference*

Mr. Everett Bannister, chairman, reported that the Medical Executives Conference had met on December 11 and outlined the agenda of the meeting. One action, taken by practically unanimous vote, was to voice opposition to further educational campaigns such as that mounted by the American Medical Association in October. Mr. Bannister also presented the names of Mary York of Sonoma County and Jerrie Whitely, Charles Johnson and Frederick O. Field, all of Los Angeles County, for consideration for membership in the conference.

ACTION: Above nominees voted membership in Medical Executives Conference.

15. *AMA Delegation*

Doctor J. Lafe Ludwig, chairman of the California delegation to AMA, presented a report on the activities of the delegation at the AMA clinical meeting concluded December 2 in Miami Beach.

16. *Medical Care for the Needy Elderly*

Doctor Teall discussed a resolution approved by the American Medical Association regarding medical care of the needy elderly and the possibility of California's mounting a positive program to carry out this policy. In support of such a program he offered a resolution reading:

Resolved, (1) That the Council create an ad hoc action committee to develop a vigorous public and legislative campaign for enactment of legislation to

secure, by extension of MAA and all other possible mechanisms, high quality medical care for all elderly Californians who need assistance to this end, with particular emphasis on the use of voluntary prepaid health insurance; and

(2) That the Council assure this action committee of adequate financial support for success in this campaign.

ACTION: Resolution approved as submitted and referred to Committee on Committees for composition of action committee and to Finance Committee for provision of funds.

ACTION: Approved Doctors Doyle and Teall's attendance at an AMA Conference on December 13 to inform AMA of California's proposals. A special meeting of AMA Trustees may be requested.

17. *Committee for Emergency Action*

Doctor Anderson reported that the Committee for Emergency Action had approved the submission to the Senate Fact Finding Committee on Public Health and Safety of a letter concurring with the Los Angeles County Medical Association's request that the proposed district review committees of the Board of Medical Examiners be minimally comprised of (a) one physician designated by the Board of Medical Examiners; (b) one physician to be appointed from the faculty of a medical school (c) 60 per cent of the membership of the Committee to be physicians nominated by county medical societies within the District. Following receipt of that communication, the Chairman of the Senate Fact Finding Committee requested clarification of the methods of appointment. Following discussion by the Council, the following action was taken:

ACTION: Approved the formulation by the Council chairman and CMA staff of a letter to be directed to the chairman of the Senate Fact Finding Committee which would specify that appointments to district review committees shall be made by the Governor in the following manner: (a) one physician to be appointed from nominees submitted by the State Board of Medical Examiners; (b) one physician to be appointed from the faculty of a clinical department of an approved medical school and (c) three physicians chosen from nominations submitted by the county medical society or societies within the District.

18. *Finance Committee*

Doctor Murray reported that the Finance Committee had already considered a budget for the 1965-1966 fiscal year and would submit a proposed budget to the January Council meeting. Following Council approval, the budget would be discussed with the appropriate reference committee of the House of Delegates.

Doctor Murray also reported that the Finance Committee had authorized an initial appropriation of \$50,000 for carrying out the public and legislative campaign approved earlier for health care of the needy elderly.

ACTION: Appropriation of \$50,000 as initial funds for campaign approved by required three-fourths affirmative vote.

19. *Scientific Board*

Doctor Shaw reported that the Scientific Board had approved a proposal that phenylketonuria testing of newborns be carried out voluntarily as a standard procedure and that the State Department of Public Health was considering the availability of laboratories for this test where facilities were not available to physicians or hospitals. Doctor Day of the State Department of Public Health confirmed the department's willingness to consider this program, with a suggested fee of \$3.

ACTION: Program as outlined approved in principle.

Doctor Shaw also reported that the Scientific Board had voted to oppose the creation of two state respiratory disease centers but to recognize respiratory diseases as representing a problem and to urge the component societies to make use of facilities already available to their members.

ACTION: Position of Scientific Board approved.

For the Maternal and Neonatal Mortality Committee of the Scientific Board, Doctor Shaw requested that an additional \$1,485 be budgeted for this committee to permit it to cover the increased costs of its infant mortality studies.

ACTIONS Approved in principal and referred to Finance Committee.

Doctor Shaw further reported that two conferences on continuing medical education had been most successful and that the scientific program for the 1965 Annual Session would be an outstanding program and would soon be printed in CALIFORNIA MEDICINE.

20. *Committee on Legislation*

(a) Doctor Dan O. Kilroy, chairman of the Committee on Legislation, reported that the State of California was working on a revision of the state constitution and that Councilor Richard L. Taw had been appointed a member of the revision committee appointed for this task.

(b) Doctor Kilroy also reported that a legislative committee is considering introducing into the 1965 Legislature some amendments to present laws covering the reporting of cases of child abuse or beating. The amendments would require that all suspected cases be reported to a central agency, which would

serve as a clearing house, with the physician being allowed to request that no police action be taken if such would be detrimental to the welfare of the child. Where repeated offenses by an adult were reported, police action could be taken.

ACTION: This program approved and suggestion added that the reporting physician be given immunity from civil actions stemming from his reporting.

(c) Doctor Quinn discussed the misuse of some drug preparations available for public sale and proposed a resolution reading:

Resolved, That the Council expresses disapproval of over-the-counter sale of such exempt narcotic preparations as are subject to abuse and recommends that the CMA cooperate with the pharmaceutical profession, with law enforcement and appropriate legislative committees to sponsor legislation which would define these compounds as legend drugs subject to sale by prescription only.

ACTION: Resolution approved as offered.

21. *Ad Hoc Committee on State Fees*

Doctor Roger Isenhour, chairman, requested that the Council consider granting permission to release to state officials information on usual and customary fees. Differences in the cost of practicing medicine argue against adoption of one coefficient for all sections of the Relative Value Studies unless that coefficient be on a high level. Studies made by the Bureau of Research and Planning, not released for public consumption, have a bearing on this and Doctor Isenhour asked that such studies be made available to his committee.

ACTION: Staff directed to disseminate essential information to the Council, which will consider the matter at its January meeting.

22. *Medical Staff Survey Committee*

Doctor MacLaggan, chairman, reported that the committee had surveyed 10 hospitals in the San Joaquin County and surrounding area and eight hospitals in Los Angeles during November and that additional surveys are planned. He also reported on the progress of three areawide hospital planning committees in the state and on his attendance at a recent area hospital planning group meeting in Miami Beach.

Doctor MacLaggan also reported that an AMA meeting on Kerr-Mills planning would be held in Chicago on January 9 and that he had been invited to attend as chairman of the Council's ad hoc committee on Kerr-Mills.

ACTION: Authority voted for Doctor MacLaggan to attend January 9 meeting, and to add the chairman of the newly-authorized action committee as an attendant.

23. *Ad Hoc Committee on Workmen's Compensation*

Doctor Anderson gave a progress report on conferences with state officials on industrial accident matters and expressed the hope that the Relative Value Studies might gain at least partial recognition in industrial cases. Subcommittees of the State Council of Employer Associations are studying such matters as free choice of physicians, fees and other items.

24. *Commission on Community Health Services*

Doctor Kay reported that the Committee on Traffic Safety had requested a change in name of the present Epilepsy Reporting Law because the law covered other disease conditions and it was not felt that one disease be singled out.

ACTION: Voted to request Committee on Legislation to work for a change in the name of this law.

Doctor Kay also reported that more than 7,000 copies of the commission's Health Tip item on meningitis had been requested following publicizing of the item in *Newsletter* and that many physicians had reported that this item was widely read when placed in medical waiting rooms.

25. *Legal Department*

Mr. Hassard reported that a four-page insert on the Association's Keogh Law program had been published in *Newsletter* and that more than 125 inquiries had resulted, with 20 new members signed up under the program.

26. *Time and Place of Next Meeting*

It was announced that the Council would next meet on Sunday, January 17, 1965, in the Statler-Hilton Hotel, Los Angeles, following the January 16 Conference of Component Society Officers.

27. *Committee on School Health*

Doctor MacLaggan reported that a legislative committee would soon be meeting in San Diego and consider on its agenda the question of physical education periods in schools. He asked if the Association should take a stand on whether these periods be devoted to physical education or to health education.

ACTION: Refer matter to Committee on School Health.

28. *Honor to Doctor Loren R. Chandler*

Doctor MacLaggan, in behalf of Doctor Dozier, introduced the following resolution:

WHEREAS, The Council of the California Medical Association has today approved Retired Membership status for Doctor Loren R. Chandler; and

WHEREAS, this marks the closing of the active professional career of one of our finest members; and

WHEREAS, through the years our "Yank" Chandler has won an outstanding reputation as doctor, teacher, dean and outstanding medical educator, distinguished citizen and loyal friend of doctors and people everywhere; now therefore be it

Resolved, That the Council today adjourn in honor of this great doctor-man-teacher-leader—and a grand person—"Yank" Chandler; and be it further

Resolved: That this action be appropriately communicated to Doctor Chandler.

ACTION: Resolution unanimously adopted.

29. *February, 1965, Council Meeting*

It was agreed that the Council meeting of February 27, 1965, be held in San Francisco.

Adjournment

There being no further business to come before it, the meeting was adjourned at 4:20 p.m. in honor of Loren R. Chandler, M.D.

CARL E. ANDERSON, M.D., *Chairman*

MATTHEW N. HOSMER, M.D., *Secretary*



In Memoriam

BARKER, GERALD S., Napa. Died December 8, 1964, in Napa, aged 43. Graduate of the University of California School of Medicine, Berkeley-San Francisco, 1953. Licensed in California in 1954. Doctor Barker was an associate member of the Napa County Medical Society.



BECK, ALLAN CARLTON, Merced. Died January 3, 1965, in Merced, aged 34. Graduate of Wayne University College of Medicine, Detroit, Michigan, 1955. Licensed in California in 1959. Doctor Beck was a member of the Merced County Medical Society.



BERG, ADOLPH, San Francisco. Died December 8, 1964, in Saratoga, aged 91. Graduate of Cooper Medical College, San Francisco, 1905. Licensed in California in 1905. Doctor Berg was a retired member of the San Francisco Medical Society and the California Medical Association, and an associate member of the American Medical Association.



FIST, HARRY S., Los Angeles. Died January 8, 1965, in Los Angeles, aged 75, of cancer. Graduate of Jefferson Medical College of Philadelphia, Pennsylvania, 1919. Licensed in California in 1923. Doctor Fist was a member of the Los Angeles County Medical Association.



FLYNN, STEPHEN E., Coronado. Died January 7, 1965, aged 64. Graduate of Creighton University School of Medicine, Omaha, Nebraska, 1930. Licensed in California in 1931. Doctor Flynn was a member of the San Diego County Medical Society.



FOSTER, WILLIAM S., Santa Barbara. Died January 8, 1965, in Santa Barbara, aged 55. Graduate of the University of Buffalo School of Medicine, New York, 1936. Licensed in California in 1943. Doctor Foster was a member of the Santa Barbara County Medical Society.



HEERES, PETER S., San Bernardino. Died December 31, 1964, in San Bernardino, aged 58. Graduate of the College of Medical Evangelists, Loma Linda-Los Angeles, 1942. Licensed in California in 1942. Doctor Heeres was a member of the San Bernardino County Medical Society.



KIRCHOFF, JOHN JONATHAN, Los Angeles. Died January 13, 1965, in Los Angeles, aged 76, of heart disease. Graduate of the University of Arkansas School of Medicine, Little Rock, 1920. Licensed in California in 1920. Doctor Kirchoff was a member of the Los Angeles County Medical Association.



MERRITHEW, EDWIN W., Martinez. Died January 12, 1965, in Martinez, aged 84. Graduate of Cooper Medical College, San Francisco, 1905. Licensed in California in 1905. Doctor Merrithew was a member of the Alameda-Contra Costa Medical Association.



MCGREANE, FRANK XAVIER, Calistoga. Died December 18, 1964, at St. Helena, aged 61, of cancer. Graduate of the University of Minnesota Medical School, Minneapolis, 1927. Licensed in California in 1933. Doctor McGreane was a

retired member of the Napa County Medical Society and the California Medical Association, and an associate member of the American Medical Association.



OLMSTEAD, ROSCOE CHARLES, Pasadena. Died December 30, 1964, in Pasadena, aged 83, of coronary disease. Graduate of the University of Michigan Medical School, Ann Arbor, 1906. Licensed in California in 1906. Doctor Olmstead was a member of the Los Angeles County Medical Association.



PRESANT, JOSEPH M., Oakland. Died December 20, 1964, in Oakland, aged 53, of heart disease. Graduate of the University of Buffalo School of Medicine, New York, 1942. Licensed in California in 1946. Doctor Presant was a member of the Alameda-Contra Costa Medical Association.



ROBBINS, ALFRED ROWLAND, Los Angeles. Died January 11, 1965, in Los Angeles, aged 64, of brain tumor. Graduate of Indiana University School of Medicine, Bloomington-Indianapolis, 1927. Licensed in California in 1930. Doctor Robbins was a member of the Los Angeles County Medical Association.



ROCKWELL, WINTHROP R., Mill Valley. Died December 19, 1964, aged 35, of injuries received in an automobile accident. Graduate of the University of Minnesota Medical School, Minneapolis, 1953. Licensed in California in 1958. Doctor Rockwell was a member of the Marin Medical Society.



SPAULDING, ALBERT QUINCY, Carpinteria. Died January 13, 1965, aged 70. Graduate of the College of Physicians and Surgeons of San Francisco, 1921. Licensed in California in 1921. Doctor Spaulding was a retired member of the Santa Barbara County Medical Society and the California Medical Association, and an associate member of the American Medical Association.



THOMPSON, CHARLES WILLIAM, Pasadena. Died January 5, 1965, in Pasadena, aged 87. Graduate of Wayne State University College of Medicine, Detroit, Michigan, 1902. Licensed in California in 1915. Doctor Thompson was a member of the Los Angeles County Medical Association.



WILLIER, ALBERT F., San Diego. Died December 19, 1964, aged 83. Graduate of the University of Missouri School of Medicine, Columbia, 1904. Licensed in California in 1920. Doctor Willier was a member of the San Diego County Medical Society.



ZIMMERER, STELLA R., Los Angeles. Died December 14, 1964, in Los Angeles, aged 90, of arteriosclerotic heart disease. Graduate of the College of Physicians and Surgeons of San Francisco, 1902. Licensed in California in 1902. Doctor Zimmerer was a retired member of the Los Angeles County Medical Association and the California Medical Association, and an associate member of the American Medical Association.

WEST COAST COUNTIES

Presented cooperatively by West Coast Counties Medical Societies, Continuing Education in Medicine and the Health Sciences, University of California Medical Center, San Francisco and the Committee on Continuing Medical Education, California Medical Association. A 13-hour course.

HOST: Monterey County Medical Society. Regional Chairman: William B. Wenner, M.D., 726 Cass Street, Monterey.

INSTITUTE FEE: \$15.00. For additional information contact Continuing Medical Education office, California Medical Association, 693 Sutter Street, San Francisco 94102. All California Medical Association members and their families are cordially invited to attend.

15th ANNUAL regional postgraduate institute

*Del Monte Lodge
Pebble Beach*

March 12-13, 1965

PROGRAM

FRIDAY, MARCH 12

8:15—Registration

Morning Session

I. SYMPOSIUM ON OCCLUSIVE VASCULAR DISEASE

9:00-9:30—Occlusive Renal Disease: A Treatable Cause of Hypertension—J. Max Rukes, M.D.

9:30-10:00—Sympathectomy, Graft or Endarterectomy: The Lower Limb—Frank H. Leeds, M.D.

10:00-10:15—Question and Answer Period

10:15-10:30—INTERMISSION

10:30-12:15—Strokes: The Therapeutic Implications from Angiography

10:30-11:00—The Radiologist—Juan Taveras, M.D.

11:00-11:30—The Neurosurgeon—Robert F. Palmer, M.D.

11:30-12:00—The Vascular Surgeon—Edwin J. Wylie, M.D.

12:00-12:15—Open Forum Discussion with Audience Participation

Afternoon Session

2:00-2:40—Myocardial Hypoxia: Its Definition and Prognosis—Maurice Eliaser, M.D.

2:40-3:15—Practical Considerations in Occlusive Vascular Disease of the Lungs—John Butler, M.D.

3:15-3:30—Question and Answer Period

3:30-3:45—INTERMISSION

3:45-5:30—Combined Medico-Surgical Approach to Hypertension: Case Presentation and Discussion—Robert R. Wright, M.D., Moderator. Maurice Eliaser, M.D., J. Max Rukes, M.D., Juan Taveras, M.D., Edwin J. Wylie, M.D.

SATURDAY, MARCH 13

Morning Session

II. SHOCK

9:00-9:45—Pathophysiology of Shock — John Butler, M.D.

9:45-10:00—Question and Answer Period

10:00-10:45—Clinical Management of Shock—Maurice Eliaser, M.D.

10:45-11:00—Question and Answer Period

11:00-11:15—INTERMISSION

11:15-12:00—Renal Problems in Shock—J. Max Rukes, M.D.

12:00-12:15—Question and Answer Period

Afternoon Session

III. THE PATIENT WITH "GASTRIC PAIN"

2:00-2:25—Medical Aspects—J. Alfred Rider, M.D.

2:25-2:50—Radiologic Studies in Pancreatico-Duodenal Pathology—Juan Taveras, M.D.

2:50-3:15—Surgical Aspects—Frank H. Leeds, M.D.

3:15-3:30—Question and Answer Period

3:30-3:45—INTERMISSION

3:45-5:00—Clinicophysiology Conference and Case Discussions—Robert R. Wright, M.D., Moderator. Frank H. Leeds, M.D., J. Alfred Rider, M.D., Juan Taveras, M.D.

application for **HOTEL** **ACCOMMODATIONS**

94th **ANNUAL** **SESSION**

CALIFORNIA
MEDICAL
ASSOCIATION

March 28-31, 1965

**FAIRMONT & MARK HOPKINS
HOTELS
SAN FRANCISCO**

House of Delegates Opening Session,
Saturday evening, March 27, Mark
Hopkins Hotel; Scientific Sessions
and Exhibits, Fairmont Hotel, begin
Sunday morning, March 28.

Information

1. Please fill in the form below **completely** for room accommodations at the CMA's 1965 Annual Session. There is only a limited number of rooms available. Your choice of accommodations will be better if your request is for rooms to be occupied by two or more persons.
2. Your reservation request should include the **definite date and hour** of your arrival and departure.
3. Reservations can only be held until 6:00 p.m.
4. All reservations must be made through the **CMA Housing Bureau, Department 34, 693 Sutter Street, San Francisco, California 94102.**
5. **DEADLINE** for housing: March 1, 1965.

Hotel Room Rates*

	Single	Twin Beds	Suites
MARK HOPKINS	\$17.00—23.00	\$21.00—28.00	\$40.00—80.00
FAIRMONT	17.00—25.00	22.00—36.00	40.00—up
FAIRMONT TOWER	26.00—32.00	31.00—37.00	65.00—150.00
HUNTINGTON	14.00—25.00	18.00—25.00	40.00 & 50.00
SHERATON-PALACE	13.00—17.00	17.00—21.00	25.00—35.00 up
ST. FRANCIS	13.00—26.00	18.00—29.00	32.00—55.00
SIR FRANCIS DRAKE	12.00—18.00	18.00—22.00	49.00—up
JACK TAR	15.00—28.00	19.00—30.00	34.00—89.00
S. F. HILTON	12.00—23.00	18.00—27.00	44.00—up

*The prices quoted are existing rates, but are subject to change.

California Medical Association—Housing Bureau, Department 34
693 Sutter Street, San Francisco, California 94102

Please reserve the following accommodations for the 94th Annual Session of the California Medical Association in San Francisco, March 28-31, 1965. The first meeting of the House of Delegates begins Saturday evening, March 27, at the Mark Hopkins Hotel.

Single Room \$.....Twin-Bedded Room \$.....Other.....

Small Suite \$.....Large Suite \$.....Other.....

First Choice Hotel.....Second.....

Arrival (date).....Hour.....a.m.....p.m.....

Departure (date).....Hour.....a.m.....p.m.....

} Hotel reservations only held
until 6:00 p.m.

THE NAME OF EACH HOTEL GUEST MUST BE LISTED. Therefore, please include the names and addresses of both persons for each twin-bedded room requested; and names and addresses of all other persons for whom you are requesting reservations, and who will occupy the rooms asked for:

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Individual Requesting Reservations—PLEASE PRINT OR TYPE:

Name:.....Are you a CMA Officer?.....Delegate?.....Alternate?.....

Address:.....County.....

City and State.....Zip No.....

PUBLIC HEALTH REPORT

MALCOLM H. MERRILL, M.D., M.P.H.
Director, State Department of Public Health

TUBERCULOSIS CONTROL. despite notable progress in recent years, still demands a sizable share of public health attention in many communities. Fifty years ago tuberculosis infection was very common. In many cases active disease developed, particularly in young people, and many of them died of the disease. Tuberculosis was the chief cause of death in the United States and California at the turn of the century. Today it ranks sixteenth nationally among causes of death, and is fifteenth in California.

When drugs were discovered that made specific treatment for the disease possible, more than 95 per cent of the newly diagnosed cases responded to the new drug therapy. With the discovery of these drugs the conquest of tuberculosis seemed imminent. The number of new active cases discovered yearly in California decreased greatly during the 1950's. However, the situation has remained static during the past three years. Tuberculosis is proving to be more stubborn than was anticipated a decade ago.

During the past decade, newly reported cases of tuberculosis declined about 5 per cent each year. In 1963, newly reported cases in California did not decline; 4,901 cases were reported as compared with 4,837 in 1962. Further, reactivated cases made up 20 per cent of all the active cases reported in 1963. Approximately 10 per cent of the cases in Los Angeles and San Francisco Bay areas were first reported at death.

Over half of the patients in whom the disease becomes active again after chemotherapy or who have not followed the therapeutic regimen, harbor organisms which are resistant to one or more of the primary drugs.

The resistance factor demands continuous surveillance, lest the experiences of drug resistance in meningococcal and hospital staphylococcal infections be repeated in tuberculosis. As both an acute and chronic disease, tuberculosis would be a far more treacherous community problem should this occur.

The California Interagency Council on Tuberculosis and the State Health Department have joined together to press for a concentrated and statewide effort to eradicate tuberculosis from California.

This effort will depend on renewed efforts in the use of present knowledge, organization and facili-

ties. Tuberculosis is still a great problem and control measures are complex. Continued reduction in the incidence of tuberculous disease and infection is achievable, but progress in this direction will require wisely directed augmented efforts on the part of both private physicians and public health departments.

An analysis of cyclical trends in the occurrence of meningococcal meningitis in California since 1918 suggests that 1963 could have been a peak year in California and the incidence of infection would have decreased this year. However, the number of cases reported through November 1964 had already exceeded the 1963 total of 388. As 1964 drew to a close, the number of cases reported each week showed no sign of decreasing.

A change in the prevailing strains together with the emergence of sulfonamid-resistant strains of the meningococcus has significantly altered the character of the problem and requires a new approach to control.

California, in 1959, became the first state to enact legislation to challenge cancer quackery. The Cancer Law stipulated that diagnostic and therapeutic means for cancer be scientifically sound, subject to scrutiny.

To implement the law, an investigatory agency, the Cancer Diagnosis and Therapy Evaluation Unit, was established in the State Health Department. Through this unit evidence could be assembled, testing and investigation conducted, and recommendations for legal action reported to the Cancer Advisory Council, a 15-member body composed of competent medical experts and educators and laymen.

Since 1959, six agents have been ruled unlawful for "prescription, administration, sale or other distribution" in California through the actions of the advisory group and the State Board of Public Health.

The Cancer Law, which has already shown effectiveness in curbing some of the agents used in California, has also served as a prototype for legislation that has been enacted since in several other states.

Reenactment of California's Cancer Law, which expires this year, is currently being sought.

PRESIDENTS' DINNER-DANCE

*Presidents' Annual Reception
Gold Room, 7:00 to 8:00 p.m.*

SUNDAY, MARCH 28, 8:00 p.m.

VENETIAN ROOM ♦ FAIRMONT HOTEL

Entertainment



Dancing to Ernie Heckscher



Sirloin of Beef

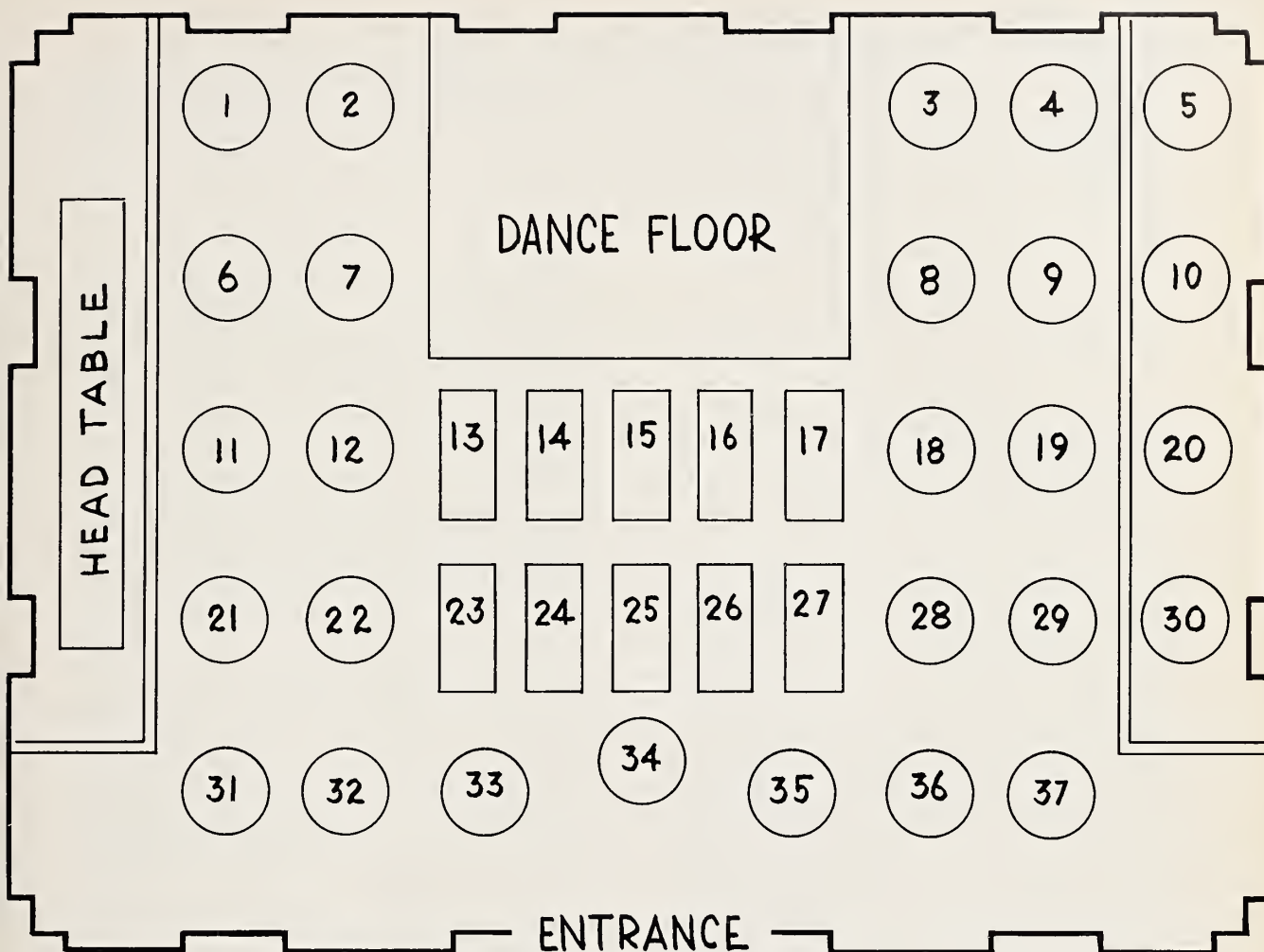
Cost: \$15.00 per person, including Reception, tax, tip and cover

ONLY 375 TICKETS AVAILABLE

Your tickets will be held for you at the door to the Venetian Room. A receipt for your check will be sent to you. Please present this receipt at the door for your ticket, Sunday night, March 28 or

Tickets may be picked up at any time Saturday or Sunday between 9 a.m. and 5 p.m. at the ticket booth, Woman's Auxiliary registration desk. Requests for tables for large parties should be sent in one envelope and early.

COMPLETE ANNUAL SESSION PROGRAM
FOLLOWS PAGE 170



VENETIAN ROOM—FAIRMONT HOTEL

Choose a location for your table from the floor plan above. All tables seat 10 persons.

MRS. TOM M. FULLENLOVE—*Chairman*
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MRS. ROBERT C. COMBS, *Co-Chairman*
OR 195 Miraloma Drive
San Francisco, California 94127

Enclosed is my check for \$_____. Please send me _____ ticket(s) to the
PRESIDENTS' DINNER-DANCE, Sunday, March 28, 1965.

Table Choice _____ or assign next best available _____
(Number) 1st 2nd 3rd

NAME _____

ADDRESS _____

MAKE CHECKS PAYABLE TO THE CALIFORNIA MEDICAL ASSOCIATION



WOMAN'S AUXILIARY

to the California Medical Association

International Health Activities

INTERNATIONAL Health Activities is the Woman's Auxiliary world wide program of service.

Our Auxiliary members collect and send through agency outlets medicines and other supplies which are shipped to missionary physicians who ask our help to bring medical assistance to all parts of the world where people are not as fortunate as we in having such good medical care. We gather "left-overs" and send them to places where need is greatest. We collect drug samples not used by our physician husbands. We want medical and surgical supplies, instruments and other equipment in good condition but which have been replaced by the physicians with new and more modern, used medical textbooks (not more than four years old), used medical journals which go to foreign physicians.

All contributions (except drug samples) are income tax deductible if such have been appraised and you have your receipt.

All drugs must be in the original sealed package. The term "drug samples" refers to all medications except narcotics which we do not collect.

We endeavor to invite foreign physicians' wives to auxiliary meetings if they are in our communities.

It will be of great assistance to the auxiliary if all physicians will do EVERYTHING that they can to see that drug samples and other articles for which they have no use are collected and turned over to the Woman's Auxiliary through their wives or a member who will get them to the County Chairman of International Health Activities. They will be carefully transported to the nearest direct relief foundation.

Thanks to all physicians for your assistance. Just tell your wife or one of our auxiliary members to call. We shall be there to get your samples, etc. The Auxiliary pays transportation to the direct relief outlet.

By this means, we are able to promote "Better Health for a Better World."

Mrs. George K. Dunklee, Chairman, San Luis Obispo County I.H.A. and Mrs. George F. Baier, State Chairman I.H.A.



NEWS & NOTES

NATIONAL • STATE • COUNTY

ALAMEDA

"Development of the Immune Response in the Human Infant" will be the subject of the 13th annual **Clifford D. Sweet Memorial Lecture**, highlight of a two-day post-graduate seminar sponsored by the medical staff of Children's Hospital of the East Bay, Oakland. The lecture will be given on Saturday evening, April 10, by **Dr. Richard T. Smith**, professor and head of the department of pediatrics, University of Florida.

Dr. Smith will speak Friday morning, April 9, on "Infectious Disease in Children."

Another out-of-state speaker will be **Dr. Lester W. Martin**, director of pediatric surgery, Children's Hospital, Cincinnati. On Saturday morning Dr. Martin will speak on "Hirschsprung's Disease" and on Saturday afternoon he will discuss "Clinical Problems of Sex Determination."

Both men will participate in panel discussions during the seminar.

LOS ANGELES

The University of Southern California has received a one-year \$20,000 grant from the Joseph P. Kennedy Jr. Foundation to plan and develop an application to government sources to establish a **mental retardation clinical training facility** on the USC campus, Dr. Norman Topping, USC President, announced.

Dr. Wylda Hammond, a pediatrician specializing in the causes and treatment of mental retardation, is already at work at USC planning the center and bringing together the work done in this field by many departments.

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Dr. Franklin D. Murphy, chancellor of the University of California at Los Angeles, has been elected a member of the board of directors of Ford Motor Company.

A physician, who also has had a long career in education, Dr. Murphy has occupied his present position at UCLA since 1960.

Dr. Murphy is also director of Hallmark Cards, Inc., and of the McCall Corporation. He is president of the Kress Foundation and a member of the Carnegie Foundation for the Advancement of Teaching and of the National Advisory Council to the Peace Corps.

* * *

The following officers of the **Southern California Society of Gastroenterology** were elected for 1965: Drs. Jacob Lichstein, president; Morton I. Grossman, vice-president; T. Newlin Hastings, secretary-treasurer.

The Society is now entering into its 13th year and has a membership of approximately 125. It has fostered original research by awarding prizes and it holds periodic scientific sessions.

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The **Southwestern Pediatric Society** is sponsoring a two-day meeting on March 30 and 31 at the Statler Hilton Hotel in Los Angeles. Speakers are: Dr. Nevelle Butler, Hospital for Sick Children, London, and Dr. Phillip L. Calcagno, professor and chairman of the Department of Pediatrics, Georgetown University, Washington, D.C.

Dr. Butler is the director of the British Perinatal Survey and will speak on problems of the neonatal period based

on the experience of 17,000 births and 7,000 perinatal deaths. Dr. Calcagno will present five papers related to the kidney and its function in children.

ORANGE

The new officers of the **Orange County Radiological Society** for 1965-66 are: president, Dr. E. Nicholas Sargent; vice-president, Dr. Robert M. Sodaro; secretary-treasurer, Dr. Herbert H. Benson.

Regular meetings are the 4th Tuesday of every month.

SAN DIEGO

The **Pacific Coast Oto-Ophthalmological Society** will hold its annual meeting at the Hotel Del Coronado, Coronado, April 25-29, 1965.

SAN FRANCISCO

The fifth **Low-Beer Memorial Lecture** on radiation therapy will be held at the University of California Medical Center, San Francisco, Wednesday, February 17, at 8 p.m. **Dr. Isadore Lampe**, professor of radiology at the Alice Crocker Lloyd Radiation Therapy Center, University of Michigan, Ann Arbor, will speak on "Radiation Therapy of Carcinoma of the Oral Cavity." The lecture is open to interested physicians and others.

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The 1965 annual meeting of the **American Society for the Study of Sterility** will be held in San Francisco, April 2-4.

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The fourth annual **Sterling Bunnell Memorial Lecture** on Reconstructive Surgery will be delivered this year by Dr. J. William Littler, of New York City. The lecture, on transplantation in reconstructive surgery of the hand, will be presented at Lane Hall, Presbyterian Medical Center, Clay and Webster Streets, San Francisco, on April 9, at 8:00 p.m.

Dr. Littler is chief of plastic and reconstructive surgery at the Roosevelt Hospital in New York City.

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Rehabilitation of the injured worker will be stressed March 27 at a Conference on Occupational Health to be held in the Fairmont Hotel, San Francisco.

General chairman will be Packard Thurber, Jr., Glendale. Dr. John S. Young, medical director of Craig Rehabilitation Hospital, Denver, will be a key speaker.

Dr. Young was named 1963 "Physician of the Year" by President Kennedy's Committee on Employment of the Handicapped.

Insurance, labor and management leaders and California Medical Association members have been invited.

GENERAL

The American College of Physicians (ACP) will hold a regional meeting for internists in its Southern California, Northern California and Nevada Regions, February 19-21, 1965.

The meeting will be held at the El Mirador Hotel, Palm Springs, California. It will consist of scientific presentations, informal luncheons and evening social hours and a banquet.

ANNOUNCEMENT of other meetings to be held in San Francisco during the CMA Annual Session will be found on the Other Meetings and Entertainment page in the Annual Program which follows this month's Book Review section.

EDUCATION NOTICES

Meetings and Courses

COMMITTEE ON CONTINUING MEDICAL EDUCATION

THIS BULLETIN of the dates of continuing education programs and the meetings of various medical organizations in California is supplied by the Committee on Continuing Medical Education of the California Medical Association. In order that they may be listed here, please send communications relating to your future meetings or postgraduate courses to Committee on Continuing Medical Education, California Medical Association, 693 Sutter Street, San Francisco, California 94102.

KEY TO ABBREVIATIONS AND SYMBOLS

Medical Centers and CMA Contacts
for Postgraduate Course Information

CMA:	California Medical Association For information regarding Postgraduate Institutes and Circuit Courses, Contact: Continuing Medical Education, California Medical Association, 693 Sutter Street, San Francisco 94102. PRospect 6-9400, Ext. 68.
LLU:	Loma Linda University For information on courses contact: W. F. Norwood, Ph.D., Assistant Dean and Chairman, Division of Continuing Education, Loma Linda University School of Medicine, 1720 Brooklyn Ave., Los Angeles, California 90033, ANgeles 9-7241, Ext. 214.
PRES. MED. CTR.	Presbyterian Medical Center For information on courses contact: Arthur Selzer, M.D., chairman, Education Committee, Presbyterian Medical Center, Clay and Webster Streets, San Francisco 94115, WEst 1-8000.
UCLA:	University of California at Los Angeles For information on courses for physicians or ancillary personnel contact: Thomas H. Sternberg, M.D., Assistant Dean and Head, Continuing Education, U.C.L.A. Medical Center, Los Angeles, 90024, 478-9711, Ext. 2114.
UCSF:	University of California, San Francisco For information on courses for physicians or ancillary personnel contact: Seymour M. Farber, M.D., Dean, Educational Services and Director, Continuing Education, University of California Medical Center, Room 565-U, San Francisco 94122, MOntrrose 4-3600, Ext. 179.
USC:	University of Southern California For information on courses contact: Phil R. Manning, M.D., Associate Dean, Postgraduate Division, USC School of Medicine, 2025 Zonal Ave., Los Angeles 90033, CApital 5-1511, Ext. 300.
STAN:	Stanford University For information on courses for physicians or ancillary personnel contact: Roy Cohn, M.D., Associate Dean for Graduate Affairs, Stanford University School of Medicine, 300 Pasteur Drive, Palo Alto, DAvenport 1-1200.

*Fee to be announced.

†Hours to be announced.

FEBRUARY

- February 15-19—**Course for Physicians in General Practice.** UCSF at Mount Zion Hospital, San Francisco. Monday-Friday. 32 hours. \$100.
- February 17-April 7—**Medical Economics.** Wednesdays. 16 hours. \$35. UCLA.
- February 18-March 25—**Neuropsychiatry in General Practice.** UCSF at Napa State Hospital, Imola.*†
- February 18-20—**Skin Bacteria and Their Role in Infection.** Thursday-Saturday. 15 hours. \$35. UCSF.
- February 19-21—**The American College of Physicians—Southern California, Northern California, Nevada Regional.** El Mirador, Palm Springs. Friday-Sunday. Contact: Edwin V. Banta, Jr., M.D., 2 West Fern Avenue, Redlands.
- February 19-21—**Neurological Procedures and Principles Useful in Internal Medicine.** USC at Los Angeles County Hospital. Friday-Sunday. 22 hours. \$65.
- February 20—**Concepts of Mental Health Consultation.** Saturday. 7 hours. \$25. UCLA.
- February 20-21—**Pediatric Urologic Seminar.** Childrens Hospital, Los Angeles. Saturday-Sunday. Contact: H. H. Edelbrock, M.D., 6753 Hollywood Blvd., Los Angeles 90028.
- February 20-22—**Selecting Children for Special Educational Services.** Saturday-Monday. 18 hours. \$15. UCSF.
- February 23—**Orange County Radiological Society.** Tuesday. Contact: Herbert H. Benson, M.D., secretary-treasurer, 100 Valencia-Mesa Drive, Fullerton.
- February 24—**Shock Symposium.** USC at Statler Hilton Hotel, Los Angeles. Wednesday. 7 hours. \$25.
- February 25-26—**Pulmonary Disease.** USC at Beverly Hilton Hotel, Beverly Hills. Thursday-Friday. 14 hours. \$45.
- February 25-26—**SOUTHERN COUNTIES—Regional Postgraduate Institute presented by California Medical Association** in cooperation with Stanford University School of Medicine. "Advances in Therapeutics." Disneyland Hotel, Anaheim. Chairman: Edward Shanbrom, M.D., Orange County General Hospital, 101 South Manchester, Orange.
- February 26-27—**Clinical Neurology.** Friday-Saturday. UCSF.*†
- February 27—**Symposium on Immunology and Respiratory Tract Diseases.** Sponsored by Tuberculosis and Health Association of Contra Costa. Richmond. Saturday. 7 hours. Contact: Clifford L. Feiler, M.D., chairman, 949 Moraga Road, Lafayette 94549.
- February 27-28—**Early Management of Acute Trauma.** Saturday-Sunday. 12 hours. UCLA.*
- February 27-28—**Neuropsychiatric Management in Daily Practice.** UCSF at Modesto State Hospital, Modesto, Saturday-Sunday.*†

MARCH

- March 3-5—**Keratoplasty.** Lions Eye Bank, Pres. Med. Ctr. Wednesday-Friday. 24 hours. \$125. Limited to specialists.
- March 3-May 19—**Doctor-Patient Communication: A Laboratory Course.** USC at Los Angeles County Hospital. Wednesdays. 24 hours. \$25.
- March 3-May 19—**Introduction to Family Therapy.** USC at Los Angeles County Hospital. Wednesdays. 24 hours. \$35.

March 5—**Santa Clara County Heart Association Annual Postgraduate Symposium.** Veterans Administration Hospital, Palo Alto. Friday. Contact: Santa Clara County Heart Association, 1961 The Alameda, San Jose.

March 5-6—**Operable Heart Disease Annual Conference.** Friday-Saturday. 16 hours. \$35. Pres. Med. Ctr.

March 6-7—**Surgical Techniques for Degenerative Hip Disease.** Saturday-Sunday. 12 hours. UCLA.*

March 7-11—**Alumni Postgraduate Convention, Loma Linda University School of Medicine.** March 7-8 (Sunday-Monday)—Refresher Courses. White Memorial Medical Center. March 9-11 (Tuesday-Thursday)—Scientific Assembly. Ambassador Hotel. Contact: Samuel H. Fritz, M.D., general chairman, 1832 East Michigan, Los Angeles 90033.

March 10-14—**Diagnostic Radiology.** Wednesday-Sunday. 26 hours. \$110. UCSF.

March 12-13—**WEST COAST COUNTIES—Regional Postgraduate Institute presented by California Medical Association** in cooperation with University of California School of Medicine, San Francisco. Del Monte Lodge, Pebble Beach. Chairman: William B. Wenner, M.D., 726 Cass Street, Monterey.

March 12-14—**Cardiology.** Friday-Sunday. 16 hours. UCLA.*

March 13—**Demonstrations in Clinical Hematology.** UCSF at Children's Hospital, San Francisco. Saturday. 6 hours. \$15.

March 13-14—**Cancer Conference.** Saturday-Sunday. 16 hours. \$25. Pres. Med. Ctr.

March 13-14—**Neuropsychiatry in Daily Practice.** UCSF at Agnews State Hospital, San Jose. Saturday-Sunday.*†

March 15-19—**Advanced Electrocardiography and Vectorcardiography.** Co-sponsored by the Daniel Freeman Hospital and the Los Angeles County Heart Association. Wednesday through Friday evenings at the Daniel Freeman Hospital, Inglewood. Registration fee: \$50. Contact: Walter S. Graf, M.D., program chairman, The Daniel Freeman Hospital, 333 N. Prairie Avenue, Inglewood.

March 17-18—**Cancer Seminar.** Sponsored by the Arizona Division of the American Cancer Society. Pioneer Hotel, Tucson. Wednesday-Thursday. Contact: Darwin W. Neubauer, M.D., 720 North Country Club Road, Tucson 85716.

March 19-21—**Sex Disorders in Clinical Practice: A Program for Physicians.** Friday-Sunday. 20 hours. \$75. UCSF.

March 20—**Treatment of Fractures.** Saturday. 8 hours. \$25. Pres. Med. Ctr.

March 24-25—**Annual Cardiovascular Symposium for the Physician Practicing General Medicine.** Sponsored jointly by the Los Angeles County Heart Association and Los Angeles Academy of General Practice. Statler Hilton Hotel, Los Angeles. Wednesday-Thursday. Contact: Los Angeles County Heart Association, 2405 W. Eighth Street, Los Angeles 90057.

March 27—**Progress in Pediatrics.** Saturday. 8 hours. \$25. Pres. Med. Ctr.

March 28-31—**CALIFORNIA MEDICAL ASSOCIATION 94th Annual Session.** Scientific theme: "Virology." Fairmont Hotel, Mark Hopkins Hotel, San Francisco. Sunday-Wednesday. Contact: Mr. John Hunton, executive secretary, 693 Sutter Street, San Francisco 94102.

APRIL

April 1-2—**California Conference of Local Health Officers Semi-Annual Meeting.** Hyatt House, San Francisco Airport. Thursday-Friday, 9:00 a.m. to 5:00 p.m. Contact: Acton W. Barnes, State Department of Public Health, Division of Community Health Services, 2151 Berkeley Way, Berkeley 94704.

April 2-4—**American Society for the Study of Sterility.** San Francisco. Friday-Sunday. Contact: Herbert H. Thomas, M.D., executive secretary, 944 S. 18th Street, Birmingham, Alabama.

April 2-4—**Anesthesiology, Annual Postgraduate Assembly.** Sponsored by the Anesthesia Section of the Los Angeles County Medical Association. International Hotel, Los Angeles. Friday-Sunday. \$20. Contact: Joseph L. Cadranel, M.D., secretary, 9430 Kirkside Road, Los Angeles 90035.

April 2-4—**Proctology.** Friday-Sunday. UCSF.*†

April 4-8—**American College of Obstetricians and Gynecologists Annual Clinical Meeting.** Civic Auditorium, San Francisco. Sunday-Thursday. Contact: Robert A. Kimbrough, M.D., director, 79 West Monroe Street, Chicago 60603.

April 5-16—**Prosthetics-Orthotics.** Monday-Friday. 90 hours. \$200. UCLA.

April 7-10—**Emergency Care of the Sick and Injured.** Wednesday-Saturday. 24 hours. \$20. UCLA.

April 7-May 12—**Psychiatry for General Practice.** UCSF at Stockton State Hospital, Stockton.*†

April 8-June 10—**Ward Walks in Rare Diseases.** USC at Los Angeles County Hospital. Thursdays. 20 hours. \$105.

April 8-9—**Current Concepts in Obstetrics and Gynecology.** USC at Statler Hilton Hotel, Los Angeles. Thursday-Friday. 14 hours. \$45.

April 9-10—**Clifford D. Sweet Lecture and Two-Day Postgraduate Seminar.** Children's Hospital of the East Bay, Edith Meyers' Auditorium, 51st and Grove Streets, Oakland. Friday-Saturday. Fee: \$25. Contact: Medical Staff office, Children's Hospital of the East Bay.

April 9-15—**American Academy of General Practice.** San Francisco. Friday-Thursday. Contact: Mac F. Cahal, J.D., Volker Boulevard at Brookside, Kansas City 12, Mo.

April 10—**Conference on Ophthalmology.** For Ophthalmologists only. Saturday all day. No fee. Pres. Med. Ctr.

April 10-11—**Clinical Considerations in Mental Retardation.** UCSF at Sonoma State Hospital, Eldridge. Saturday-Sunday.*†

April 10-11—**The Uncertain Quest: The Teen-Ager's World.** Saturday-Sunday. UCSF.*†

April 22-24—**Inheritable Endocrine and Metabolic Diseases: Prevention, Detention, and Treatment.** Thursday-Saturday. UCSF.*†

April 24-25—**Neuropsychiatry for the Non-Psychiatric Physician in General Practice.** Sutter Memorial Hospital, Sacramento. Saturday-Sunday. UCSF.*†

April 25-30—**Pacific Coast Oto-Ophthalmological Society Annual Meeting.** Hotel Del Coronado, Coronado. Sunday-Friday. Contact: George E. Morgan, M.D., executive secretary-treasurer, 960 East Green Street, Pasadena 91101.

April 29-May 1—**Ear, Nose, Throat.** Friday-Saturday. UCSF.*†

April 30-May 1—**Pediatrics.** Friday-Saturday. UCSF.*†

MAY

- May 3-4—**Surgery of the Head and Neck.** Monday-Tuesday, 12 hours. UCLA.*
- May 3-6—**Anesthesiology Biennial Western Conference.** Vancouver, British Columbia. Monday-Thursday. Contact: Gilbert E. Kinyon, M.D., vice chairman, Governing Board; publicity chairman, 5252 Chelsea, La Jolla.
- May 6-7—**Diseases of the Larynx.** Thursday-Friday. 12 hours. UCLA.*
- May 12-14—**Highlights of Modern Ophthalmology.** For Ophthalmologists only. Wednesday-Friday. \$75. Pres. Med. Ctr.
- May 13-16—**The Arterial Tree.** Thursday-Sunday. 24 hours. UCLA.*
- May 14—**California Heart Association Scientific Sessions.** Mark Thomas Inn, Monterey. Friday. Contact: Marvin A. Epstein, M.D., chairman, California Heart Association, 1370 Mission Street, San Francisco.
- May 19-21—**Highlights of Modern Ophthalmology.** Pres. Med. Ctr. Wednesday-Friday. \$75. Contact: Secretary of the Lions Eye Bank, Pres. Med. Ctr., 2018 Webster Street, San Francisco.
- May 20—**San Francisco Society of Internal Medicine Annual Meeting.** San Francisco Golf Club. Thursday. Contact: Charles Barnett, M.D., secretary, 384 Post Street, San Francisco.
- May 21-23—**Laboratory Diagnosis.** Friday-Sunday. 18 hours. UCLA.*
- May 27-28—**SAN JOAQUIN COUNTIES—Regional Postgraduate Institute presented by California Medical Association** in cooperation with USC School of Medicine. Ahwahnee Hotel, Yosemite. Chairman: Howard Corbus, M.D., 1300 North Fresno, Fresno.
- May 29-June 30—**Fourth Annual Medical Centers of Europe.** \$250. USC.
- May 31-June 11—**Prosthetics-Orthotics.** Monday-Friday. 90 hours. \$200. UCLA.

JUNE

- June 10-11—**Nevada Academy of General Practice Annual Scientific Meeting.** Faculty of USC School of Medicine. Symposium on Gastroenterology. Golden Hotel, Reno, Nevada. Thursday-Friday. Contact: Robert V. Broadbent, M.D., 601 Mill Street, Reno, Nevada.
- June 16-19—**California Society of Anesthesiologists Biennial Meeting.** Sahara-Tahoe, Las Vegas, Nevada. Wednesday-Saturday. Contact: Lewis H. Lambert, M.D., chairman, 3001 Laurel Drive, Sacramento 25.
- June 23-25—**Treatment of Fractures.** USC at Los Angeles County Hospital. Wednesday-Friday. 22 hours. \$80.
- June 24-26—**SACRAMENTO VALLEY COUNTIES—Regional Postgraduate Institute presented by California Medical Association** in cooperation with UCLA School of Medicine. Harvey's Resort Hotel, Lake Tahoe. Co-Chairmen: Dixon L. Hughes, M.D., 3320 White Oak Court, Sacramento; Philip J. Reilly, M.D., 6437 Fair Oaks Boulevard, Carmichael.

JULY

- July 16-17—**NORTH COAST COUNTIES—Regional Postgraduate Institute presented by California Medical Association** in cooperation with Loma Linda University School of Medicine. Eureka Inn, Eureka. Chairman: J. Roy Wittwer, M.D., 716 Harris Street, Eureka.
- July 29-30—**Recent Trends in Strabismus Management and Treatment.** For physicians in Ophthalmology or EENT only. Thursday-Friday. \$60. Pres. Med. Ctr.

AUGUST

- August 30-September 2—**American Hospital Association.** San Francisco. Monday-Thursday. Contact: Edwin L. Crosby, M.D., director, 840 North Lake Shore Drive, Chicago 11, Illinois.

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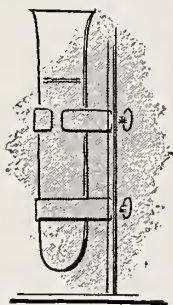
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The Physician's BOOKSHELF

THE CARE OF THE GERIATRIC PATIENT—Second Edition—Edited by E. V. Cowdry, Ph.D., Sc.D.(Hon.), F.R.M.S.(Hon.), Professor Emeritus of Anatomy, Washington University, St. Louis, Mo.; Director of Research, Scientific Associates, Inc., St. Louis, Mo. The C. V. Mosby Co., 3207 Washington Blvd., St. Louis 3, Mo., 1963. 566 pages, \$11.85.

This is a volume of some 23 essays and reports on different aspects of the care of the geriatric patient. With more than 16 million Americans 65 years or over, and with such people generally needing more care than the young, a book on this subject is timely. The essays or chapters vary widely in their worth. Some, such as that on Medical Aspects of Geriatric Care by Paul Starr and Cardiovascular Aspects by Paul Dudley White are excellent. The chapter on Nutritional Aspects by Bavetta and Nimni is very sound and helpful. There are several chapters which contain quite a bit of reference material which can be of aid to the physician wanting information about institutional care for the chronically ill as well as the aged, about rehabilitation and about nursing care in the hospital and in the home. And, finally, there are a few chapters which the reader would be wise to skip as being a waste of time.

The reviewer is bothered by the bias which runs through much of this book. It tends to put a wall around the aged person. It emphasizes the difference between the very old and the young. It does little to get at the cause or the beginning of these differences but simply assumes that they are there. Furthermore, several of the authors advocate strongly the view that the care of old people should be in the hands of a specialist in old age, or a geriatrician. If one accepts such a premise he will look more favorably on this book than the present reviewer.

EDGAR WAYBURN, M.D.

* * *

DISORDERS OF LANGUAGE—Ciba Foundation Symposium—Edited by A.V.S. De Reuck, M.Sc., D.I.C., A.R.C.S., and Maevae O'Connor, B.A. Little, Brown and Company, Boston, Massachusetts, 1964. 356 pages, \$11.00.

The Symposium is a compilation of articles and discussions by a roster of the famous, gently and adroitly guided by the inimitable hand of the chairman, Dr. Mac. Donald Critchley. The contributors represent many nations and many disciplines: neurophysiologists, psychologists, phoneticians, linguists, a philosopher and an expert of information theory. The general trend is to bring forth more information on both sides of the simple equation—"Disturbed brain function produces disturbed language." Thus although most of the articles deal primarily with aphasic language disturbances, the demented, schizophrenic and hysteric language are also briefly discussed.

The aura of chaos still exists in the study of brain localization (such as Head found one generation ago); however the chaos seems to be resolving and certain localizations are now agreed upon. Nevertheless, recovery of the functions of speech seems to depend more on the integrative functions of the brain rather than the purely localized ones. The old, and seemingly ever new problem of cerebral speech dominance is again discussed with

demonstrations that some adults have bilateral representation of language. A parallel classification of different types of aphasias with corresponding brain areas is attempted.

The anatomy of the speech areas of the brain is thus clearly dissected and discussed by the anatomists and their colleagues. The linguists in turn attempt a dissection of the language into its minute components. Several chapters are thus devoted to specific language disturbances as noted by changes in phonemes, syllables, words, pairing of words up to rather complicated syntactic analyses. Some mention is also made of word frequency, halts, expletives, etc. The relationship of language disturbances to general intelligence and behavior produced lively discussion without clear cut conclusions.

Both groups of researchers have compiled an admirable body of knowledge, but the relationship between the two fields leaves too many steps unknown, and these are only too briefly and too speculatively discussed. It is notable that Dr. Critchley states "that we have heard little about the premorbid personality and the premorbid verbal equipment." The individual as represented by his language "an integral aspect of mentation and a very personal, highly individual and fundamental aspect of behavior" continues to remain somewhat mysterious or is entirely left out.

Despite its shortcomings the book is a valuable one especially for those in contact with patients with language disturbances. The bibliography is helpful albeit almost staggering. The clear literary style peppered with historical anecdotes by Dr. Critchley is a pleasure indeed.

HILDE S. SCHLESINGER, M.D.

* * *

THE SOLITARY PULMONARY NODULE—John D. Steele, M.D., Clinical Professor of Surgery, University of California, Los Angeles, California; Chief of Surgery, Veterans Administration Hospital, San Fernando, Calif.; Chairman, Veterans Administration-Armed Forces Cooperative Study on Resected Asymptomatic Pulmonary Nodules. With a Foreword by Leo G. Rigler, M.D., Professor of Radiology, University of California, Los Angeles, Calif. Charles C Thomas, Publisher, Springfield, Ill., 1964. 226 pages, \$12.00.

This is a monograph on the radiographic appearance of the solitary pulmonary nodule as observed in a group of patients studied in the Veterans Administration and the Armed Forces Hospitals of this country. A total of 1034 cases of pulmonary nodules was submitted in the study; 887 nodules occurring in males were selected for review; these included 280 primary carcinomas. In the work the author refers to the publication of Holin who showed in Cleveland that an unselected survey of the general populace yielded solitary nodules of which 3% proved to be due to primary carcinoma; the author's work shows 31% due to this disease, and is accordingly a relatively selected group.

The author reports that 500 of the patients had cytologic examinations of sputum and bronchial washings for tumor cells; 5 cases were reported as positive for "tumor" cells; 3 of these revealed carcinomas and 2 granulomas.

The histopathologic diagnosis in the 280 primary carcinomas was: squamous cell, 99, undifferentiated, 41;

adenocarcinoma, 91; bronchiolar and papillary-adenoma, 28; mixed adenosquamous, 21.

The case reports are brief and well illustrated. Many of them contain follow-up data disclosing the survival of the patient. However, many lack such data and it is believed that the next edition could well carry this.

Although the references in the brief prefatory text include articles dated up to 1963, there are none dealing with the papers disclosing methods of diagnosing the solitary pulmonary nodule preoperatively. The fact that the differential diagnosis of many of these nodules can be made with a high degree of accuracy is one that should be known to practicing physicians and may be observed in the paper by Edwards et al. (*American Journal of Roentgenology*, 88, 1020, 1962) and the author of this review (*Canad. Med. Assoc. J.*, 83, 1079, 1960).

The author's investigation confirms the important fact that for all practical purposes solitary nodules with dense or concentric calcifications are benign. Some of the illustrations show relatively dense solitary nodules in tomographic records; it is now well known that a noncalcified nodule can project as quite dense in some planigrams. Further, examination of solitary nodules after resection may be made by nonscreen technique with an ultrasmall focus x-ray tube. Microcalcification can then be sometimes shown in primary carcinomas although such is not visible in standard screen roentgenograms made in vivo.

The author reports that 26% of the primary carcinomas in this study already had nodal intrathoracic spread at time of operation, confirming the fact that these lesions are frequently of several years duration even though less than 2 cm. diameter. This monograph should be of considerable interest to radiologists and other physicians involved in diseases of the chest.

L. HENRY GARLAND, M.D.

* * *

DYNAMIC PATHOLOGY—Structural and Functional Mechanisms of Disease—Maurice M. Black, M.D., Professor of Experimental Pathology, New York Medical College, New York, N.Y.; Attending Pathologist, Flower and Fifth Avenue Hospitals, New York, N.Y.; and Bernard M. Wagner, M.D., Professor and Chairman, Department of Pathology, New York Medical College, New York, N.Y.; Pathologist, Flower and Fifth Avenue Hospitals, New York, N.Y. The C.V. Mosby Company, Saint Louis, 1964. 296 pages, \$8.00.

Many current textbooks of pathology still stress morphologic changes characteristic of the various disease processes, despite the fact that modern concepts of pathology are not limited to the histologic study of tissues. The student may then conclude that pathologic lesions are always correlated closely with the etiology, pathogenesis and prognosis of a disease, and, as Black & Wagner suggest, a clinician may feel cheated when a pathologist cannot determine the cause of death from the microscopic examination.

Black & Wagner have approached pathology from the viewpoint of homeostasis and have stressed the dynamic nature of an infinite number of possible homeostatic levels which may be affected in disease. The first part of the book deals with homeostatic mechanisms, first of cells (including genetic concepts) and then of vascular, lymphoreticulo-endothelial, connective tissue, endocrine and hepatic and renal systems. The authors' major emphasis is on the relationship of altered structure and function and how these disturbances, morphologic and functional, relate to levels of homeostatic response and possible decompensation.

The second part of the book is concerned with anatomical and functional reactions to challenges to homeostasis by neoplasia, ionizing radiation, deficiency and infectious diseases and by aging. This part of the book was designed to provide basic concepts of disease required for studies in special pathology and in clinical medicine.

Although this book doesn't replace a standard textbook of pathology, the differences in emphasis, the inclusion of recent concepts, and the organization of and pertinent illustrations in the text should make it extremely useful for undergraduate medical students as well as for older students of disease.

STUART LINDSAY, M.D.

* * *

CURRENT DIAGNOSIS & TREATMENT—1964—Henry Brainerd, M.D., Professor of Medicine and Chairman, Department of Medicine, University of California School of Medicine (San Francisco), and Physician-in-Chief, University of California Hospitals (San Francisco); Sheldon Margen, M.D., Associate Professor of Human Nutrition Department of Nutritional Science, University of California (Berkeley), and Associate Professor of Social Welfare, University of California (Berkeley); Lecturer, Department of Biochemistry, University of California School of Medicine (San Francisco); and Milton J. Chatton, M.D., Assistant Clinical Professor of Medicine, Stanford University School of Medicine (Palo Alto), and Geriatric Consultant, Palo Alto Medical Clinic; and associate authors, Lange Medical Publications, Los Altos, Calif., 1964. 370 pages, \$9.50.

This massive paperback of 870 pages, now in its third annual revision, is literally jam-packed from cover to cover with the latest information on modern medicine. It deals primarily with internal medical disorders but includes also discussion of conditions commonly encountered in other specialties.

It is not a textbook of medicine but is intended as a useful desk reference on the most widely accepted techniques currently available for diagnosis and treatment. The authors, largely from the University of California Medical School, have borrowed material freely—narrative, graphic, and tabular—from their own and other published works.

The result is an amazingly complete source book of 28 chapters and appendices, presented for the most part succinctly and lucidly. The subjects are usually outlined rather than written up in careful narration. A separate section on recently introduced drugs is to be found in the appendix. Specific current references to clinical literature and general bibliographies have been added as a guide to further reading.

The editors and authors should be congratulated on their accomplishment. Physicians and students can find daily use for this book as a first line of consultation.

EDGAR WAYBURN, M.D.

* * *

EARLY TREATMENT OF FACIAL INJURIES—Thomas John Zaydon, M.D., F.A.C.S., Clinical Assistant Professor of Surgery, Plastic Surgery Service, Department of Surgery, University of Miami School of Medicine; Chief, Plastic Surgery Service of St. Francis Hospital, Cedars of Lebanon Hospital, North Miami General Hospital, Miami, Florida; and James Barrett Brown, M.D., F.A.C.S., Professor of Clinical Surgery, Washington University School of Medicine; Professor of Maxillofacial Surgery, Washington University School of Dentistry, St. Louis, Missouri. Lea & Febiger, Washington Square, Philadelphia, 1964. 258 pages, \$15.00.

This book should be a well thumbed volume on a library shelf of every doctor called upon to treat fresh facial injuries. For those who, by reason of location are forced to see acute injuries first not as a matter of choice or because of their particular treatment, it is a must. It is an excellent book for residents in training in surgery or in plastic and reconstructive surgery.

In a simple, brief, yet completely comprehensive fashion, this volume moves from the moment of reception of the injured patient and his immediate needs through the definitive treatment which is required. It begins with the overall general care of the injured person, the need for complete and thorough diagnoses and the methods by which such

understanding of the problems presented is arrived at. Then in concise but clearly understandable fashion, it moves to the specifics of treatment. Each feature of the face is discussed individually. Methods of repair of traumatized eyelids, nasal lacerations, specific injuries of the ear, etc. are simply but amply diagrammed and excellently illustrated by before and after photographs. In orderly fashion, it proceeds from the simplest of soft tissue injuries to the most complex of the facial fractures, always with definitive treatment of specific trauma clearly indicated by diagrams, x-rays and photographs. The illustrations throughout the book are excellent and will be a great help to the reader in understanding the clinical and surgical treatment of any injury of the face. Time proven, most widely accepted methods of treatment for specific injuries which are most likely to produce the best end results functionally and cosmetically are discussed, diagrammed and beautifully illustrated.

E. HORACE KLABUNDE, M.D.

* * *

THE BIOCHEMISTRY OF POLIOMYELITIS VIRUSES
—A Synopsis of Poliomyelitis Infection and Research—
By Ernest Kovacs, former Research Fellow, University of Toronto. A Pergamon Press Book, distributed by The Macmillan Company, New York, 1964. 269 pages, \$10.00.

With the exception of cancer no disease has been studied more intensively and exhaustively and over a longer period of time than poliomyelitis. The publications of the National Foundation indicate that at least 25,000 original articles on the subject have been published, of which perhaps a third or even more deal with laboratory research. Despite the near-extinction of the disease itself in America and Europe, research goes on apace, delving deeper and deeper into the basic biological features and problems of poliomyelitis, which in many ways is a paradigm of animal virus infections in general.

The present monograph by Ernest Kovacs of the University of Budapest, formerly research fellow at the University of Toronto, is the 21st in a series of monographs on pure and applied biology appearing under the general title of "Modern Trends in Physiological Sciences" edited by Alexander and Z. M. Bacq and published by the Pergamon Press. It may be accepted as an authoritative review of what has been discovered up to the present time on a subject of increasing complexity, together with discussions of what remains to be investigated. Aimed mainly at specialists in virology it also contains a great deal of information that will intrigue the reader with some but lesser preparation in the field. The main chapter headings may be cited: the biological, biochemical and epidemiological aspects of poliomyelitis in man and animals; experimental poliomyelitis; biochemical data on poliovirus; biochemistry of animal-adapted poliomyelitis infection, in vivo; the general biology, biochemistry and pathology of experimental poliomyelitis infection in animals; the host cells in general; cytological and biological effects of poliomyelitis virus on cells in culture; biochemistry of poliovirus infection in cells in culture; change in the physiology of cells during poliovirus infection, in vitro; the role of heredity; the epidemiology and immunology of poliomyelitis infection; facts and speculations on the biosynthesis of the poliovirus, a working hypothesis of the author; the biochemical concept of poliomyelitis infection; recent developments in poliomyelitis research.

It is quite impossible, as well as unnecessary, in a brief review, to recapitulate the enormous mass of facts and theory that compose this authoritative volume. One striking phenomenon, discovered by the author may be selected

for mention: the presence of masses of virus in crystals within leucocytes of an infected mouse, demonstrated by electron microscopy (magnification: $\times 44,380$). Kovacs regards the leucocyte as the, or a, means of virus transport in the blood in poliomyelitis.

There are 1,094 carefully selected references. The index leaves something to be desired.

The printers have done an excellent job; there is fine type face making reading a pleasure; glossy paper brings out details clearly in the graphs and photographs; and the binding is attractive.

Libraries of medical schools and other research institutions will find this a most useful addition to their shelves.

HAROLD K. FABER, M.D.

* * *

PRACTICAL PAEDIATRICS—Dr. Don Hilson, M.A. (Cantab.), M.B., B. Chir. (Cantab.), F.R.C.P.E., M.R.C.P., M.R.C.S., D.C.H., Consultant Paediatrician to the Oldham & District Hospitals, Ashton, Hyde and Glossop Hospitals, Oldham School Medical Service and Post-Graduate Clinical Tutor, University of Manchester. Grune & Stratton, Inc., New York, 1964. 462 pages, \$12.75.

With so many excellent and thorough textbooks on pediatrics already available it is difficult to find a purpose for this one. There is insufficient information in many areas to help the physician in making a diagnosis. It is difficult to understand how, as stated on page 417, the fact that the first letters of streptomycin, tetracycline, oxytetracycline, novobiocin and erythromycin spells "stone" will help anybody. In the introduction the author quotes an interesting "old adage," "that the birds one hears on the rooftops are more likely to be sparrows than canaries." The author hopes that the book will be a practical guide on "how to recognize the common problems for what they are." Students of pediatrics would do better to study and refer to a more complete text.

* * *

EMERGENCY TREATMENT AND MANAGEMENT—Third Edition—Thomas Flint, Jr., M.D., Associate Physician, Kaiser Foundation Rehabilitation Center, Vallejo. W. B. Saunders Company, Philadelphia, 1964. 686 pages, \$8.75.

This is the third edition of an extremely useful pocket book covering all of the concepts of emergency care.

Concise and complete emergency treatment of each specific condition is outlined in alphabetical order. There is a relatively large section covering specific poisons. There is no cross reference between household nomenclature and chemical names. More detailed guides to poison cases are found in other volumes dedicated to this emergency problem only.

This small manual is so detailed and complete that the physician would need to use it repeatedly in order to become familiar with all of its ramifications. It appears that nothing has been left unsaid about true common emergencies in practice.

One interesting section of the manual covers such items as the contents of the emergency bag, fluid replacement, resuscitation procedures, and simple laboratory tests in emergency cases. The last section of the book covers medical-legal procedures such as what steps to take in abandonment, release of responsibility, permits and consents, proper disposal of remains and lastly, an appendix containing important conversion tables.

All in all, the manual is small in size, contains 686 pages and is complete. It would be a useful book to carry in the glove compartment of the automobile or in the medical bag.

FRANK W. NORMAN, M.D.

PRINCIPLES OF BACTERIOLOGY AND IMMUNITY (Topley and Wilson's—Fifth Edition in Two Volumes, Volume I and II—Sir Graham S. Wilson, M.D., LL.D., F.R.C.P., D.P.H., formerly Director of Public Health Laboratory Service, England and Wales; and A. A. Miles, C.B.E., M.D., F.R.C.P., F.R.S., Professor of Experimental Pathology, University of London, and Director of the Lister Institute of Preventive Medicine, London. With the help of R. Knox, M.D., F.R.C.P.; A. D. Macrae, M.D., Dip. Bact.; M. T. Parker, M.D., Dip. Bact.; G. G. Meynell, M.D.; and Elinor W. Meynell, M.B., B. Ch., B.A.O., Dip. Bact. The Williams & Wilkins Company, Baltimore, Md., exclusive U.S. agents, 1964. Volume I—1,191 pages, plus index of 53 pages; and Volume II—1,370 pages, plus index of 53 pages; \$35.00 for both volumes.

Thirty-five years ago the first edition of this venerable text contained virtually all available knowledge in Bacteriology and Immunology, in an admirable, balanced presentation. Since World War II the enormous increase in both theoretical and applied knowledge and the vast number of significant publications, have made it virtually impossible to review in a single book comprehensively and in specific detail the rapidly moving fields of immunology, virology, molecular biology, genetics, and all the other specialties of microbiology. The authors recognize this dilemma, but valiantly persist in their effort to have ONE book cover the entire enormous field. They have succeeded remarkably well. The fifth edition, like the first, is a classic of thoughtful, well-informed compilation and documentation. Naturally, the book has become bulky in spite of small print. Very few American physicians or medical students are likely to read all 2,600 pages of the two volumes, but they will find it an excellent detailed reference work, with a wealth of interesting and useful correlations. The book is directed most clearly at bacteriologists, public health workers or epidemiologists, less at physicians concerned with infectious disease. The term "fever" does not appear in the otherwise good index. This reviewer must admit that he has not had the time or strength to read the entire 2,600 pages. However, perusal of limited sections yielded a surprising amount of up-to-date well-integrated information and carefully considered opinion. This book is a must for those who can use it to good advantage.

ERNEST JAWETZ, M.D.

* * *

CLINICAL TOXICOLOGY—Fourth Edition—Clinton H. Thienes, M.D., Ph.D., F.A.C.P., Emeritus Director, Institute of Medical Research, Collis P. and Howard Huntington Memorial Hospital, Pasadena; Emeritus Adjunct Professor of Pharmacology and Toxicology, School of Medicine, University of Southern California, Los Angeles; Consulting Member of Staffs of Huntington Memorial Hospital, Glendale Sanitarium and Hospital, Glendale Memorial Hospital, and Temple Hospital, Los Angeles; Consultant: Boyle & Company; Truesdail Laboratories; and Thomas J. Haley, Ph.D., Research Pharmacologist; Chief, Division of Pharmacology and Toxicology, Laboratory of Nuclear Medicine and Radiation Biology, University of California, Los Angeles. Lea & Febiger, Philadelphia, 1964. 661 pages, \$9.50.

This is the fourth edition of a well-known text on clinical toxicology. Its sections are listed according to the site of action of certain of the poisons. For instance, there are sections on convulsive poisons; central nervous system depressants; peripherally acting nerve poisons; muscle, protoplasmic and blood poisons. In my opinion, the book would be very useful for a detailed account of the action of poisons when they are identified. Under each poison listed, there is a consideration of the toxic dose, the etiology, the symptoms and actions, duration, pathology, causes of death and short sections on treatment.

The last section of the book which occupies approximately half of its total volume concerns itself with the chemical diagnosis of poisons including essential equip-

ment, separation of poisons by chemical testing and analyses, microcrystalline tests and other more complex means of identifying poisons.

The book cannot be construed as a manual for the emergency treatment of the common poisons but rather a manual of toxicology which could be used as a reference especially for those physicians who must act on occasion as toxicologists in the absence of specialists in this field. The book might find its use therefore greatest in more isolated areas of practice where proper procedures must be found immediately and in detail and recorded for medical-legal reasons.

FRANK W. NORMAN, M.D.

* * *

THE ZYMOGRAM IN CLINICAL MEDICINE—S. H. Lawrence, M.D., Assistant Clinical Professor, Department of Medical Microbiology and Immunology, University of California Medical School, Los Angeles, Calif. Charles C Thomas, Publisher, Springfield, Illinois, 1964. 100 pages, \$5.75.

The medical student and the graduate physician currently are being bombarded with a large number of enzymes which perform important bodily functions. Although he may have a speaking familiarity with the enzyme, the physician often has no idea of the origin, method of separation, and the mode of assay of the substance. In addition to these complexities, many new enzymes have crossed the horizon. To perplex an already obfuscated physician, the measurement of isozymes, which are enzyme fractions with similar catalytic properties but with different electrophoretic mobilities, is being applied to diverse clinical problems. In this small book, Dr. Lawrence has reviewed the problems concerning the nomenclature of isozymes and has discussed the methods of measure of many isozymes that are pertinent to problems in clinical medicine. The enzymes which are covered are acid phosphatase, alkaline phosphatase, 5-nucleotidase, amylase, beta-glucuronidase, aminopeptidase, ribonuclease, lactic acid dehydrogenase, malic dehydrogenase, isocitric dehydrogenase, alcoholic dehydrogenase, glutamic dehydrogenase, beta-hydroxybutyric dehydrogenase, glucose-60-phosphate dehydrogenase, alpha-glycerophosphate dehydrogenase, succinic dehydrogenase, alpha-hydroxybutyric dehydrogenase, cytochrome oxidase, peroxidases, haptoglobin-hemoglobin oxidase, catalase, tyrosinase, ceruloplasmin, monoamine oxidase, transaminases, and lipoprotein associated enzymes. Sprinkled throughout the book are interesting clinical interpretations of the significance of some of the isozyme values. The appendix contains useful information of detailed instructions for many of the various biochemical procedures. This book is recommended to all physicians as it points in the direction of things to come for laboratory diagnoses.

B. J. HAVERBACK, M.D.

* * *

SIGNS AND SYMPTOMS—Applied Pathologic Physiology and Clinical Interpretation—Fourth Edition—Edited by Cyril Mitchell MacBryde, A.B., M.D., F.A.C.P., Associate Professor of Clinical Medicine, Washington University School of Medicine; Assistant Physician, The Barnes Hospital; Director, Metabolism and Endocrine Clinics, Washington University Clinics, St. Louis, Missouri. J. B. Lippincott Company, Philadelphia and Montreal, 1961. 971 pages, \$14.00.

In the words of the editor, a basic philosophy of this book is to emphasize the "... processes which result in manifestations of the disabilities and derangements of disease." The 31 contributors have done this very well.

At a time when the advancement of scientific knowledge which is applicable to medicine is rapid and frequently dramatic, the practicing physician becomes increasingly aware of the value—even the necessity—of understanding

the reasons for signs and symptoms rather than to be content with knowing that they exist. Recognizing that truth is not always easy to discover and that the quantity and quality of dependable evidences which have clinical applications produce changing patterns, the authors present the material in a manner which identifies precise methods by which they can be evaluated with accuracy and for definitive purposes.

The entire book is a valuable text and reference for medical students and for practicing physicians, whether they be general practitioners or specialists. Certain chapters are mentioned here as examples for the purpose of emphasizing this point. Those which cover the symptoms of pain or anesthesia are worth the price of the book. How does one evaluate pain quantitatively and qualitatively and by what formulae does he apply it to the diagnosis of disease? These chapters give sound advice on this subject.

The revised chapter on headache by the late Harold Wolff is a classic with which all physicians should be acquainted. The one which covers the common symptoms of nervousness and fatigue has unusual practical applications. In that a large proportion of patients have cardio-respiratory diseases, how does one suspect early cases and those which present equivocal signs and symptoms? What are the signs and symptoms which suggest abnormalities in nutrition and metabolism? Particularly, what are the evidences of imbalances in fluid and electrolytes? These are only a few of the questions which are answered within the respective chapters of the book.

Many books have been written for the purpose of relating pathologic physiology to clinical medicine but few if any have done it as well as this one.

* * *

SYNOPSIS OF PATHOLOGY—Sixth Edition—W. A. D. Anderson, M.A., M.D., F.A.C.P., F.C.A.P., Professor of Pathology, University of Miami School of Medicine, Coral Gables, Florida; Director of Pathology Laboratories, Jackson Memorial Hospital, Miami, Florida. The C. V. Mosby Company, Saint Louis, 1964. 883 pages, \$9.75.

Dr. Anderson has again in this sixth edition of his well-known handbook demonstrated that it is possible to summarize and organize the vast body of information comprising "pathology" into a synopsis which is something more than a mere quiz compendium.

The arrangement of this present edition is as previously and is the classical one of considering basic pathologic changes, such as inflammation and disturbances of circulation, followed by a discussion of specific infectious disease and disturbances of growth and nutrition, before systemic pathology arranged by organ systems is presented. A number of well organized and well thought out tables convey much information with great saving of space. Of course, there can never be unanimity as to what to include or omit in a work of this type but in general the selection has been made wisely and a surprising number of topics are covered very succinctly. Revision appears to be as current as is possible in a textbook.

The small size ($4\frac{1}{2}'' \times 7\frac{1}{4}''$) makes for convenient handling, the paper is of excellent quality, and the illustrations are well reproduced. This small book will be particularly useful to the clinician who must refresh his memory and reorient himself prior to examination for certification. The book continues to be popular with medical students but should be used by this group in conjunction with a more detailed reference text. Dental students and workers in the basic and nonclinical medical sciences will find it a helpful and readily understandable source of information. Certainly, many pathologists keep a copy at hand for quick review and easy reference.

RICHARD O. MYERS, M.D.

POSITIONING IN RADIOGRAPHY—Eighth Edition—K. C. Clark, M.B.E. Grune & Stratton, Inc., New York and London, 1964. 806 pages, \$35.00.

Approximately two years have elapsed since the publication of the last edition of this internationally accepted standard of radiographic technique. New positions and new methods have been added. New contrast agents are duly noted. Improved methods of cineradiography, macroradiography and microradiography are considered. The work is exhaustive, beautifully illustrated and well indexed. It is a pleasure to recommend it to radiologists and other clinicians interested in the highest quality of modern radiography.

L. H. GARLAND, M.D.

* * *

ADVANCES IN BIOLOGY OF SKIN — Vol. 5 — Wound Healing—edited by William Montagna, University of Oregon Medical School, Portland, Oregon; Oregon Regional Primate Research Center, Beaverton, Ore.; and Rupert E. Billingham, Department of Anatomy, The Wistar Institute, Philadelphia, Pa. (Proceedings of the Brown University Symposium on the Biology of Skin, 1963.) A Pergamon Press Book, distributed by The Macmillan Company, New York, 1964. 254 pages, \$15.00.

The most recent addition to the series, *Advances in Biology of Skin*, makes exciting reading for all who are interested in the biology of wound healing. Studies in wound healing rank among the oldest problems in medicine. Although treatises on this subject are numerous, they are usually entirely descriptive and lack information concerning the nature of the healing process itself. In recent years there has been an increasing awareness of the problems involved and an accompanying revitalization of research efforts in the field.

In accordance with this new emphasis, contributors to this volume have virtually ignored the surgical aspects of wound repair and have concentrated on experiments designed to answer certain basic questions concerned with the origin, turnover and behavior of various tissue components following different kinds of injury. To this end a variety of studies have been described in which precise quantitative as well as qualitative answers were sought through the use of current isotope tracer techniques, tissue culture, electron microscope methods and other modern research tools.

Although studies on mammalian skin occupy the major space in this volume, a considerable amount of attention has been paid to other organs such as the cornea, hamster cheek pouch, esophagus and the specialized integument enveloping the deer antler, emphasizing the fact that "wound healing" is not necessarily "skin healing."

Equal time is devoted to consideration of epithelial and stromal problems. A. E. Needham has considered the evolutionary aspects of the problem. C. P. Lebond and his co-workers, as well as others, have dealt with the relationship of epithelial cell formation and cell migration. Several authors have considered the origin, synthesis and evolution of fibrous tissue in repair and the regeneration and repair of blood vessels in wounds.

Perhaps the most provocative chapter was written by Michael Abercrombie who has thoughtfully discussed some of the possible reactions between cells which may guide the process of healing skin. In outlining the various problems of initiation and control of cell movement, mobilization, relationships between cell movement and mitosis, limitation of population increase and other problems, Dr. Abercrombie has described the enormity of the problems at hand; the limits of our present knowledge and the complex interrelationships of cells and stroma and α -factors which must be defined before true understanding of the healing process can be achieved.

94th

annual session
PROGRAM

HOTELS

Fairmont and Mark Hopkins
San Francisco

MARCH 28 to 31, 1965



Scientific Sessions • Technical Exhibits

Motion Picture Symposia

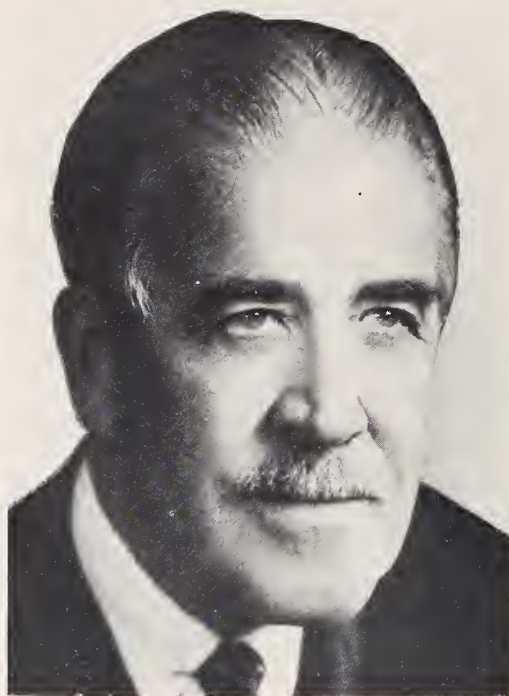
Closed-Circuit Television Symposia

Meetings of the House of Delegates

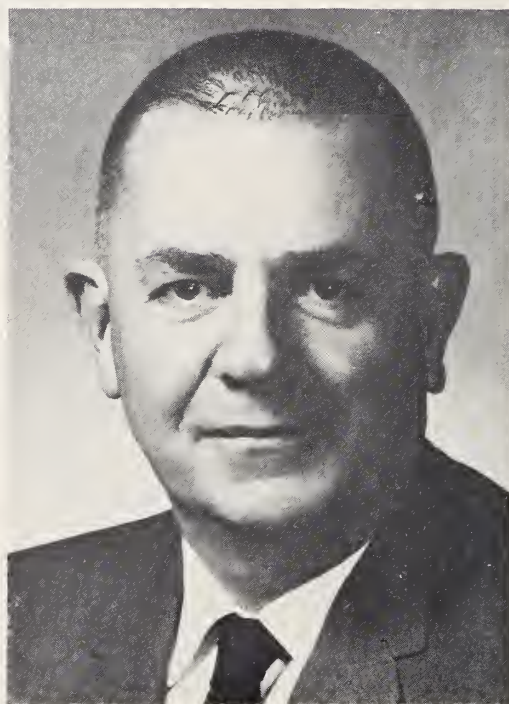
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*Ninety-Fourth
Annual Session*

Fairmont and Mark
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SAN FRANCISCO
March 28 to 31*
1965

*House of Delegates
Opening Meeting
Saturday, March 27
7:00 p.m.

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Information

BADGES: It is important that badges be worn at all times. Admission to scientific meetings is by badge only.

COUNCIL. The Council will meet Saturday, March 27, Argonaut Room, Mark Hopkins Hotel; and every morning thereafter in the Emerald Room, Mark Hopkins Hotel.

DELEGATES: For list of delegates, meeting times, places and agenda, see pages 41 to 46.

EMERGENCY CALLS AND MESSAGES: For emergency calls and messages call: 781-4300 from 8:30 a.m. through 5:00 p.m., Saturday, March 27 through Wednesday, March 31.

MESSAGE CENTER: (781-4300)—Provided by the Pacific Telephone and Telegraph Company — Registration Desk, Foyer of Grand Ballroom, Lower Level, Fairmont Tower—Registration Desk is open from 8:30 a.m. until 5:00 p.m., and the Association will *attempt* to transmit messages to the individual physicians. Each physician should notify his own office of the exact times, and meetings, he plans to attend and the convention telephone number.

EXHIBITS: Technical Exhibits—Grand Ballroom, Lower Level, Fairmont Tower. See pages 63 to 69.

Scientific and Organizational Exhibits — Grand Ballroom, Lower Level, Fairmont Tower. See page 39.

MOTION PICTURE SYMPOSIA will be shown in the afternoons in the Terrace Room, Fairmont Hotel. See program synopsis page 38.

TELEVISION SYMPOSIA are scheduled in the mornings in the Terrace Room, Fairmont Hotel. See program synopsis page 38.

LABORATORY EXAMINATION PROGRAM: The California Society of Pathologists will conduct a laboratory examination program in the Grand Ballroom Bar, Lower Level, Fairmont Tower. All physicians are invited to be examined.

MEETING TIMES AND PLACES: See chart on page 12 for exact times and places of general and section meetings.

REGISTRATION: Registration and information desks are located in the Main Lobby of the Fairmont Hotel and in the Grand Ballroom Foyer, Lower Level, Fairmont Tower. *All members, guests, and visitors are requested to register immediately upon arrival.* There is no charge for registration. Registration desks are open Saturday through Wednesday. Admission to the general and section sessions and exhibit area is by badge only. Members wishing to vote in specialty sections must indicate appropriate section when registering; voting in other sections will not be allowed.

QUALIFICATIONS/REQUIREMENTS FOR REGISTRATION. (a) All M.D.'s with credentials showing that they hold valid license to practice medicine. (Membership card in CMA; county medical society/association or AMA membership card.) (b) Medical students will be admitted upon presentation of credentials from their medical schools identifying them as medical students. (A membership card of the Student American Medical Association or letter from their dean's office.) (c) Medical secretaries will be admitted upon presentation of a letter from their physician-employer. (d) Pharmacist mates and other military personnel of a like grade will be admitted upon presentation of a letter requesting their admittance, written by their commanding officer. (e) Dentists (D.D.S.), doctors of veterinary medicine (D.V.M.), registered nurses (R.N.), student nurses, x-ray technicians, laboratory technicians, allied public health personnel, and others will be admitted provided they have proper identification. (f) All questions on admission will be passed upon by a member of the Committee on Registration who will be present at the desk.

■ **THURSDAY AND FRIDAY, MARCH 25 AND 26**

Regional Workshops for Pathology Residents on Problems in the Practice of Pathology — American College of Pathologists—San Francisco Hilton Hotel, 9:00 a.m. to 5:00 p.m.

■ **SATURDAY, MARCH 27**

CMA HOUSE OF DELEGATES OPENING SESSION—Room of the Dons and Peacock Court, Mark Hopkins Hotel, 7:00 p.m.

CALPAC Meeting—Room of the Dons and Peacock Court, Mark Hopkins Hotel, after the meeting of the CMA House of Delegates.

CMA Cancer Committee Conference on Radiology—Vanderbilt Room, Terrace Floor, Fairmont Hotel, 9:30 a.m. to 5:00 p.m.

CMA Committee on Occupational Health Conference on Industrial Health—French Room, Lobby Floor, Fairmont Hotel, 8:30 a.m.

CMA Section on Pathology, Hunt Room, Mezzanine, Fairmont Hotel, 2:00 p.m.

American College of Chest Physicians, Gold Room, Lobby Floor, Fairmont Hotel, 9:00 a.m. to 5:00 p.m.

California Society of Anesthesiology, Clift Hotel, San Francisco, 9:00 a.m. to 5:00 p.m.

California Society of Pathologists Semi-Annual Meeting, Hunt Room, Mezzanine, Fairmont Hotel, 5:00 p.m.

San Francisco Dermatological Meeting, Dermatology Clinic, Room 334 of the Clinics Building of the University of California Medical Center, San Francisco, 2:00 p.m.—No-host party and dinner, Letterman General Hospital, San Francisco Presidio, 6:00 p.m.

■ **SUNDAY, MARCH 28**

PRESIDENTS' RECEPTION AND DINNER DANCE—Reception, 7 p.m., Gold Room; Dinner-Dance, Venetian Room, Fairmont Hotel, 8:00 p.m. Formal dress optional. Honoring the Presidents of the California Medical Association and the Woman's Auxiliary. Tickets on sale in the Main Floor Lobby.

CMA Cancer Committee Conference on Pathology—Gold Room, Lobby Floor, Fairmont Hotel, 9:00 a.m. to 5:00 p.m.

CMA Section on Pediatrics and the State Federation of Pediatric Societies Luncheon Meeting, California Room, Mezzanine, Fairmont Hotel, 12:30 p.m.

California Radiological Society Annual Meeting—Vanderbilt Room, Terrace Floor, Fairmont Hotel, 2:30 p.m.

■ **MONDAY, MARCH 29**

Bureau of Medical Economics Meeting and Luncheon—Far East Room, Fairmont Hotel, 9:00 a.m. to 5:00 p.m.

AMA Delegates Meeting—Baldwin Room, Mark Hopkins Hotel, 2:00 p.m.

"California Medicine" Editorial Board Luncheon—Florentine Room, Mezzanine, Fairmont Hotel, 12 Noon.

■ **TUESDAY, MARCH 30**

CMA Section on Obstetrics and Gynecology Joint Luncheon Meeting with the California Division of the American College of Obstetrics and Gynecology—Crystal Room, Lobby Floor, Fairmont Hotel, 12:00 noon.

CMA Past Presidents' Luncheon—Twentieth Century Room, Mezzanine, Fairmont Hotel, 12:00 noon.

■ **WEDNESDAY, MARCH 31**

CMA Disaster Medical Care Meeting—French Room, Lobby Floor, Fairmont Hotel, 9:00 a.m. to 12:00 noon.

Other Meetings and Entertainment

CALIFORNIA MEDICAL ASSOCIATION

Pre-Convention and Convention Conferences

SAN FRANCISCO, CALIFORNIA ★ FAIRMONT HOTEL

**SATURDAY,
MARCH 27**

COMMITTEE ON CANCER, RADIOLOGY CONFERENCE

Vanderbilt Room, Terrace Floor

Chairman, Elmer Ng, M.D., Redwood City

Secretary, Stanley A. Moore, M.D., San Diego

THERAPY SESSION—9:30 a.m. to 11:30 a.m.

Cases with specific therapy problems will be presented. The audience is asked to participate actively.

DIAGNOSTIC SESSION—1:30 p.m. to 3:30 p.m.

Diagnostic cases with histories and films will be presented. Cases have been selected to illustrate specific problems in the radiological and clinical diagnosis of cancer. Audience participation and discussion are urgently requested.

COMMITTEE ON OCCUPATIONAL HEALTH, Conference on Occupational Health

8:30 a.m., French Room, Lobby Floor

General Chairman: Packard Thurber, Jr., M.D., Glendale

For complete program, see page 7.

**SUNDAY,
MARCH 28**

COMMITTEE ON CANCER, Pathology Conference on Animal Tumors

9:00 a.m., Gold Room, Lobby Floor

Moderator: Charles N. Barron, D.V.M., Ph.D., Philadelphia

Those who wish slides and protocols for the conference [cost \$25.00] are requested to pre-register with Weldon K. Bullock, M.D., Registrar, Tumor Tissue Registry, CMA Committee on Cancer, Los Angeles County Hospital, 1200 N. State Street, Los Angeles 33. The \$25 fee includes registration. For those who wish to attend the conference the fee is \$25. There is no charge for residents and interns.

**WEDNESDAY,
MARCH 31**

COMMITTEE ON DISASTER MEDICAL CARE, Symposium on All Hallows Church Fire

9:00 a.m., French Room, Lobby Floor

Presiding: John Heald, M.D., San Francisco

For Complete Program, see page 7.

SPECIAL CONFERENCES

SATURDAY, MARCH 27—8:30 a.m.—French Room, Lobby Floor

CONFERENCE ON OCCUPATIONAL HEALTH

General Chairman:

Packard Thurber, Jr., M.D., Glendale

8:30—Registration

9:00—Addresses of Welcome — Carl E. Anderson, M.D., Chairman of the Council, California Medical Association, Santa Rosa; and Packard Thurber, Jr., M.D., Chairman, Committee on Occupational Health, Glendale.

Symposium

9:10— The Physician in Industry

Presiding: Edward P. Luongo, M.D., Los Angeles

1. Role of the Full-Time Medical Director—Edward J. Zaik, M.D., Los Angeles.
2. Role of the Part-Time In-Plant Physician—Walter J. Gillogley, M.D., Belmont.
3. Role of the Private Practitioner Rendering Outside Service—J. Minton Meherin, M.D., San Francisco.

9:55—Questions from the Floor.

10:10—The Importance of Reporting in Industrial Medicine and Surgery — John H. Leimbach, Jr., M.D., San Francisco.

10:35—Questions from the Floor.

10:45—Intermission.

11:00—Small-Plant Safety and First Aid Programs—Carl Stubbins, Los Angeles, by invitation.

11:25—Role of the Nurse in Industrial Medicine — Maryon Smith, R.N., Los Angeles, by invitation.

11:50—Questions from the Floor.

12:00—The County Medical Society in Occupational Health Programs—Herbert A. Holden, M.D., San Leandro.

12:20—Questions from the Floor.

12:30—Luncheon—

Toastmaster—James C. Doyle, M.D., President, California Medical Association, Beverly Hills.

Rehabilitating the Injured Worker—John S. Young, M.D., Denver, by invitation.

2:00— Panel Discussion

Rehabilitating the Injured Worker

Moderator: John S. Young, M.D., Denver, by invitation

1. California Self-Insurers Association—Edmund D. Leonard, San Francisco, by invitation.
2. State Compensation Insurance Fund—Raymond O. Oja, M.D., San Francisco.
3. Department of Rehabilitation — Warren Thompson, Sacramento, by invitation.
4. Industrial Accident Commission—Edmund J. Thomas, Jr., San Francisco, by invitation.
5. Santa Clara County Building Trades Council—Roger M. Brennan, San Jose, by invitation.
6. Private Practice—Vernon L. Nickel, M.D., Downey.

4:30—Summary of the Conference—Packard Thurber, Jr., M.D., Glendale.

WEDNESDAY, MARCH 31—9:00 a.m.—French Room, Lobby Floor

DISASTER MEDICAL CARE

General Chairman:

Wayne P. Chesbro, M.D., Berkeley

Presiding: John H. Heald, M.D., San Francisco

9:00—Greetings—James C. Doyle, M.D., President, California Medical Association, Beverly Hills.

9:05—All Hallows Church Fire, May, 1964, San Francisco.

1. W. F. Murray, Chief, San Francisco Fire Department, San Francisco, by invitation.
2. Bert Halter, M.D., San Francisco General Hospital, San Francisco.
3. Peter C. Boudoures, M.D., St. Luke's Hospital, San Francisco.
4. William Conroy, San Francisco Disaster Corps, San Francisco, by invitation.

5. Claude Y. Gates, M.D., Chairman, San Francisco Blood Bank, San Francisco.

6. Ellis D. Sox, M.D., Director of Public Health, San Francisco.

10:15—Panel Discussion.

Members of the Panel:

Carleton Mathewson, Jr., M.D., Presbyterian Medical Center, San Francisco.

Joseph Zem, Administrator, St. Luke's Hospital, San Francisco, by invitation.

Wilma Harris, R.N., Todd Shipyard Corporation, Alameda, by invitation.

Walter Byers, M.D., Highland Hospital, Oakland.

Wayne Chesbro, M.D., Chairman, Committee on Disaster Medical Care, California Medical Association, Berkeley.

11:30—Questions from the Floor.



GEORGE GEE JACKSON

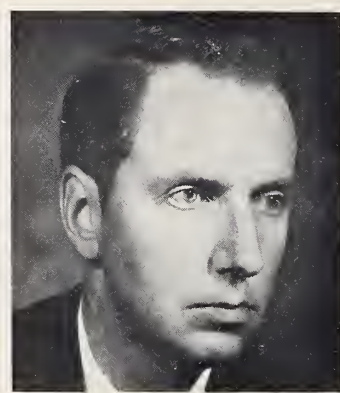
Guest Speakers



C. HENRY KEMPE



HILARY KOPROWSKI



IGOR TAMM



ROBERT R. WAGNER

■ GEORGE GEE JACKSON, M.D., Professor of Medicine, University of Illinois College of Medicine, Chicago, Illinois.

■ C. HENRY KEMPE, M.D., Professor and Chairman, Department of Pediatrics, University of Colorado School of Medicine, Denver, Colorado.

■ HILARY KOPROWSKI, M.D., Director, The Wistar Institute of Anatomy and Biology, Philadelphia, Pennsylvania.

■ IGOR TAMM, M.D., Professor, The Rockefeller Institute, New York, New York.

■ ROBERT RODERICK WAGNER, M.D., Professor of Microbiology and Head of Virology Division, The Johns Hopkins University School of Medicine, Baltimore, Maryland.

Special Guests of Sections and Other Organizations

ALLERGY	■ IRVING H. ITKIN, M.D., Assistant Clinical Professor of Medicine, University of Colorado School of Medicine, Denver, Colorado.
ANESTHESIOLOGY	■ WILLIAM K. HAMILTON, M.D., Professor and Chairman, Division of Anesthesiology, State University of Iowa College of Medicine, Iowa City, Iowa.
DERMATOLOGY	■ WILEY M. SAMS, M.D., Clinical Professor of Dermatology, University of Miami School of Medicine, Miami Beach, Florida.
INTERNAL MEDICINE	■ DOROTHY M. HORSTMANN, M.D., Professor of Epidemiology and Pediatrics, Yale University School of Medicine, New Haven, Connecticut.
OBSTETRICS AND GYNECOLOGY	■ IRWIN H. KAISER, M.D., Professor and Head, Obstetrics and Gynecology, University of Utah College of Medicine, Salt Lake City, Utah.
OPHTHALMOLOGY	■ ROBERT P. BURNS, M.D., Associate Professor of Ophthalmology, University of Oregon Medical School, Portland, Oregon.
PATHOLOGY	■ CHARLES N. BARRON, D.V.M., Ph.D., Smith, Kline & French Laboratories, Philadelphia, Pennsylvania.
COMMITTEE ON OCCUPATIONAL HEALTH	■ JOHN S. YOUNG, M.D., Medical Director, Craig Rehabilitation Hospital, Denver, Colorado.

Be sure to attend the

AMPAC REPORTS MEETING

THE POLITICAL PICTURE—MEDICINE'S FUTURE

Room of the Dons, Mark Hopkins Hotel

SATURDAY EVENING, MARCH 27

immediately following the Opening Session of the House of Delegates.

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CMA ANNUAL MEETING—1965

SCIENTIFIC SESSIONS

FAIRMONT HOTEL	SUNDAY, MARCH 28		MONDAY, MARCH 29		TUESDAY, MARCH 30		WEDNESDAY, MARCH 31	
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
Venetian Room Lobby Floor	9:30 a.m. Allergy Anesthesiology Internal Medicine Pediatrics	2:00 p.m. General Meeting Introduction to Virology	9:30 a.m. Internal Medicine	2:00 p.m. General Meeting The Clinical Implication of Virology	9:30 a.m. General Meeting Recent Advances in Virology	2:00 p.m. Obstetrics and Gynecology Luncheon		
Crystal Room Lobby Floor	9:30 a.m. General Surgery		9:30 a.m. Physical Medicine	2:00 p.m. Physical Medicine Industrial Medicine and Surgery	12:00 p.m. Obstetrics and Gynecology Luncheon	2:00 p.m. Obstetrics and Gynecology	9:30 a.m. Psychiatry and Neurology General Practice	2:00 p.m. Psychiatry and Neurology
French Room Lobby Floor	9:00 a.m. Dermatology		9:30 a.m. Industrial Medicine and Surgery General Practice			2:00 p.m. Internal Medicine	9:00 a.m. Disaster Medical Care	
Garden Room Lobby Floor	9:30 a.m. Orthopedics	2:00 p.m. Anesthesiology	9:30 a.m. Allergy			1:30 p.m. Preventive Medicine		1:20 p.m. Preventive Medicine
Gold Room Lobby Floor	9:30 a.m. Pathology Cancer Conference*	2:00 p.m. Pathology Cancer Conference						
Florentine Room Mezzanine	9:30 a.m. Ear, Nose and Throat				10:00 a.m. Urology	2:00 p.m. Urology		2:00 p.m. Pediatrics
Hunt Room Mezzanine	9:30 a.m. General Practice						VISIT THE TECHNICAL EXHIBITS	
California Room Mezzanine		12:30 p.m. Pediatrics Luncheon Meeting						
Vanderbilt Room Terrace Floor	9:30 a.m. Radiology	1:30 p.m. Radiology	9:30 a.m. Ophthalmology					
Terrace Room Terrace Floor		2:00 p.m. Film Symposium	9:00 a.m. Television from U.C. Medical Center	2:00 p.m. Film Symposium	9:00 a.m. Television from U.C. Medical Center	2:00 p.m. Film Symposium	9:00 a.m. Television from U.C. Medical Center	2:00 p.m. Film Symposium

HOUSE OF DELEGATES: Opening Session: 7:00 p.m., Saturday, Tuesday afternoon, and all day Wednesday, Room of the Dons and Peacock Court, Mark Hopkins Hotel.
TECHNICAL AND SCIENTIFIC EXHIBITS—Grand Ballroom, Lower Level, Fairmont Tower (California Street Entrance).
COUNCIL OF THE CMA: Meets Saturday, Argonaut Room; and every morning thereafter, Emerald Room, Mark Hopkins Hotel.

*The Pathology Section Meeting Scheduled 2:00 p.m. Saturday.

Scientific Sessions

■ GENERAL MEETINGS

Introduction to Virology

Moderator: Harold Simon, M.D., Palo Alto
by invitation

- 2:00—**What Is a Virus?**—Irving Gordon, M.D., Chairman,
Department of Medical Microbiology, University of
Southern California School of Medicine, Los Angeles.
- 2:30—**Interferon**—Robert Roderick Wagner, M.D., Pro-
fessor of Microbiology, Head of the Virology
Division, The Johns Hopkins University School of
Medicine, Baltimore, by invitation.
- 3:00—**Replication and Genetics of Viruses**—Renato Dul-
becco, M.D., Resident Fellow, Salk Institute of
Biological Studies, San Diego, by invitation.
- 3:30—**Diagnosis of Viral Disease**—Robert L. Magoffin,
M.D., Assistant Chief of the Viral and Rickettsial
Disease Laboratory, California State Department
of Public Health, Berkeley, by invitation.

Clinical Implications of Virology

Moderator: Edwin Lennette, M.D., Berkeley

- 2:00—**Viral Carcinogenesis** — Hilary Koprowski, M.D.,
Director of the Wistar Institute of Anatomy and
Biology, Philadelphia, by invitation.
- 2:45—**Respiratory Viruses**—George Gee Jackson, M.D.,
Professor of Medicine, Department of Medicine,
University of Illinois College of Medicine, Chicago,
by invitation.
- 3:20—**Viral Hepatitis**—Robert Ward, M.D., Physician-in-
Chief, Chairman, Department of Pediatrics, Uni-
versity of Southern California School of Medicine,
Los Angeles.
- 3:50—**Chemotherapy of Viral Diseases** — Igor Tamm,
M.D., Professor and Physician, The Rockefeller In-
stitute, New York, by invitation.

FIRST GENERAL MEETING

SUNDAY, MARCH 28

2:00 p.m.—Venetian Room, Lobby Floor

SECOND GENERAL MEETING

MONDAY, MARCH 29

2:00 p.m.—Venetian Room, Lobby Floor

THIRD GENERAL MEETING

TUESDAY, MARCH 30

9:30 a.m.—Venetian Room, Lobby Floor

Recent Advances in Virology

Moderator: Edward B. Shaw, M.D., San Francisco

- 9:30—**Immunization Against Viral Disease** — Paul F. Wehrle, M.D., Chief Physician, Children's Division, University of Southern California School of Medicine, Los Angeles.
- 10:00—**Chemoprophylaxis and Chemotherapy in Viral Infections**—C. Henry Kempe, M.D., Professor and Chairman, Department of Pediatrics, University of Colorado School of Medicine, Denver, by invitation.
- 10:30—**The Role of New Viruses in Human Disease**—Clayton G. Loosli, M.D., Hastings Professor of Medicine, University of Southern California School of Medicine, Los Angeles.
- 11:00—**Current Status of Information Regarding Rubella**—Dorothy M. Horstmann, M.D., Professor of Epidemiology and Pediatrics, Yale University School of Medicine, New Haven, by invitation.

*General
Meetings*



ACKNOWLEDGMENT

The Annual Scientific Assembly is the result of much work by many people, and the active support of several scientific organizations and societies. These cannot be individually acknowledged because of the lack of space, and in some instances, lack of information. However, the California Medical Association is extremely appreciative of this work and assistance, and thanks all who have contributed.

INTERNAL MEDICINE

Chairman JAMES H. THOMPSON, M.D., San Francisco
 Vice-Chairman WALTER P. MARTIN, M.D., Long Beach
 Secretary ROBERT L. PAVER, M.D., San Francisco

SUNDAY, MARCH 23 **9:30 a.m.—Venetian Room
 Lobby Floor**

*Joint Meeting with Sections on Allergy, Anesthesiology,
 and Pediatrics*

- 9:30—**Bronchial Asthma**—Irving Itkin, M.D., Denver, by invitation.
- 10:10—**Atelectasis**—William K. Hamilton, M.D., Iowa City, by invitation.
- 10:40—**Coffee Break.**
- 10:50—**Respiratory Distress Syndrome**—William H. Tooley, M.D., San Francisco, by invitation.
- 11:10—**Respiratory Acidosis**—Charles Carman, M.D., San Francisco.

11:50— **Symposium on Therapy**

Moderator: John Butler, M.D., San Francisco, by invitation

Members of the Panel: Charles Carman, M.D., San Francisco; Irving Itkin, M.D., Denver, by invitation; William K. Hamilton, M.D., Iowa City, by invitation; William H. Tooley, M.D., San Francisco, by invitation.

MONDAY, MARCH 29 **9:30 a.m.—Venetian Room
 Lobby Floor**

Program co-sponsored by the American College of Cardiology

Moderators: Robert W. Oblath, M.D., Los Angeles, and Harold Rosenblum, M.D., San Francisco

- 9:30—**How I Prevent, Recognize, and Treat Pulmonary Embolism**—Arthur Selzer, M.D., San Francisco.
- 9:55—**How I Manage Patients with Severe Angina Pectoris**—Francis L. Chamberlain, M.D., San Francisco.
- 10:20—**Recess.**
- 10:40—**How I Manage Patients with Myocardial Infarction**—John J. Sampson, M.D., San Francisco.
- 11:05—**How I Manage Arrhythmias**—Eliot Corday, M.D., Los Angeles.
- 11:30—**How I Prevent, Recognize, and Treat Strokes**—George C. Griffith, M.D., Los Angeles.

(Continued on Next Page)



JAMES H. THOMPSON
Chairman



ROBERT L. PAVER
Secretary



**PRESIDENTS'
RECEPTION
and
DINNER-DANCE**

■

Sunday, March 28

■

Reception

Gold Room, 7:00 p.m.

■

Dinner-Dance

Venetian Room, 8:00 p.m.

■

FORMAL DRESS
OPTIONAL

Tickets will be on sale
in the Main Lobby,
Fairmont Hotel.

**LABORATORY
EXAMINATION
PROGRAM**

The California Society of Pathologists will conduct a laboratory examination program in the Grand Ballroom Bar, Lower Level, Fairmont Tower. All physicians are invited to be examined.

TUESDAY, MARCH 30

**2:00 p.m.—French Room
Lobby Floor**

Moderator: James H. Thompson, M.D., San Francisco

2:00—**Enterovirus Infections**—Dorthy M. Horstmann, M.D., New Haven, by invitation.

2:30— **Panel Discussion**

“Wrap Up” Discussion of Controversial Subjects,
Trends and Developments in Virology, and
Questions and Answers

Members of the Panel: Dorothy M. Horstmann, M.D., New Haven, by invitation; George Gee Jackson, M.D., Chicago, by invitation; C. Henry Kempe, M.D., Denver, by invitation; Igor Tamm, M.D., New York, by invitation; and Robert R. Wagner, M.D., Baltimore, by invitation.

3:45—**Recess.**

4:00—**Viral Hematodepressive Disease in Man**—Howard R. Bierman, M.D., and Elmer A. Nelson, M.D., Beverly Hills.

4:20—**Methyl Bromide Poisoning—A Bizarre Neurological Disorder**—Raymond P. Collins, M.D., San Francisco.

4:40—**Early Detection of Lung Cancer by the Method of Sputum Induction with Heated Aerosols**—Lowell F. Steel, M.D., Chico.

4:55—**Business Meeting.**

**QUALIFICATIONS/REQUIREMENTS FOR
REGISTRATION**

(a) All M.D.'s with credentials showing that they hold valid license to practice medicine. (Membership card in CMA; county medical society/association or AMA membership card.) (b) Medical students will be admitted upon presentation of credentials from their medical schools identifying them as medical students. (A membership card of the Student American Medical Association or letter from their dean's office.) (c) Medical secretaries will be admitted upon presentation of a letter from the physician-employer. (d) Pharmacist mates and other military personnel of a like grade will be admitted upon presentation of a letter requesting their admittance, written by their commanding officer. (e) Dentists (D.D.S.), doctors of veterinary medicine (D.V.M.), registered nurses (R.N.), student nurses, x-ray technicians, laboratory technicians, allied public health personnel, and others will be admitted provided they have proper identification. (f) All questions on admission will be passed upon by a member of the Committee on Registration who will be present at the desk.

GENERAL SURGERY

Chairman.....HARRY E. PETERS, JR., M.D., Oakland
Vice-Chairman.....DAVID B. SHELDON, M.D., Los Angeles
Secretary.....NEWLIN HASTINGS, M.D., Los Angeles

SUNDAY, MARCH 28 **9:30 a.m.—Crystal Room
Lobby Floor**

9:30—Urologic Tract Lesion Simulating Intraperitoneal
Surgical Disease—David B. Hinshaw, M.D., Loma
Linda.

10:00—Complications of Colon Surgery—Ivan D. Baron-
ofsky, M.D., San Diego.

10:30—The Question of Antimicrobial Preparation of the
Colon—H. Earl Gordon, M.D., Los Angeles, by in-
vitation.

11:00— **Panel Discussion**

Management of Diverticulitis of the Colon and its
Complications

Moderator: Robert A. Scarborough, M.D., San Francisco

Members of the Panel: Ralph D. Cressman, M.D., Palo
Alto, R. Bruce Henley, M.D., Oakland, Philip R.
Westdahl, M.D., San Francisco.

11:50—Chairman's Address: How the Surgeon Can Im-
prove His Results in the Therapy of Duodenal
Ulcer—Harry E. Peters, Jr., M.D., Oakland.

12:15—Business Meeting.

Medical Motion Pictures and Television

Several Motion Picture and Television Symposia of special
interest for surgeons have been planned. A series
of movies on Sunday, March 28, beginning at 2:00
p.m., and television symposia on Monday, March 29,
and Tuesday, March 30, beginning at 9:00 a.m. For
schedule and program see Sections on Medical Mo-
tion Pictures and Television.

LABORATORY EXAMINATION PROGRAM

The California Society of Pathologists will conduct a
laboratory examination program in the Grand Ballroom
Bar, Lower Level, Fairmont Tower. All physicians are
invited to be examined.



HARRY E. PETERS
Chairman



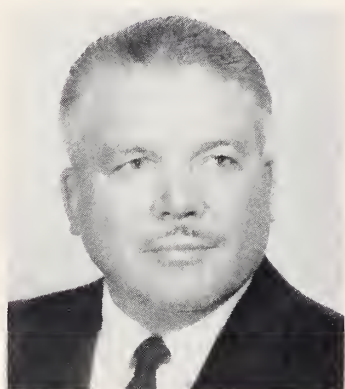
NEWLIN HASTINGS
Secretary

*General
Surgery*

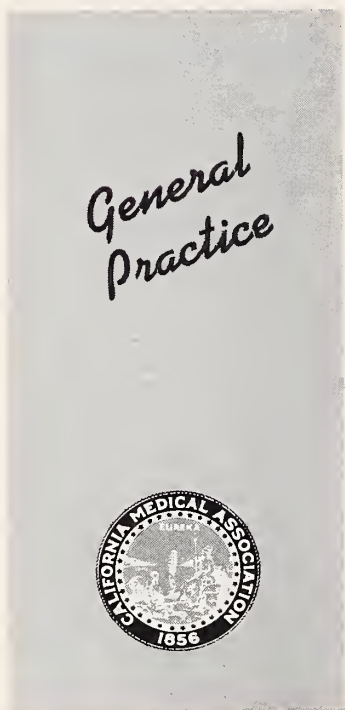




MERLIN A. HENDRICKSON
Chairman



J. BLAIR PACE
Secretary



GENERAL PRACTICE

Chairman.....MERLIN A. HENDRICKSON, M.D., Rialto
Vice-Chairman.....LELAND B. BLANCHARD, M.D., San Jose
Secretary.....J. BLAIR PACE, M.D., Oceanside

SUNDAY, MARCH 28

9:30 a.m.—Hunt Room
Mezzanine

9:30—

Panel Discussion

Improving Family Medical Care Through Teaching in Medical School

Moderator: Leland B. Blanchard, M.D., San Jose

Program Presented by members of the Faculty of Stanford University School of Medicine

Members of the Panel: Rodney R. Beard, M.D., and Robert S. Condie, M.D., Palo Alto; and Allen B. Barbour, M.D., John F. Belz, M.D., and Daniel J. Feldman, M.D., Palo Alto, by invitation.

11:50—Business Meeting.

MONDAY, MARCH 29

9:30 a.m.—French Room
Lobby Floor

Joint Meeting with Section on Industrial Medicine and Surgery

Lower Extremity Problems

Moderator: C. Frederick Burton, M.D., Oakland

9:30—Diagnosis of Internal Derangement of the Knee—J. Harold LaBriola, M.D., Los Angeles.

9:50—Knee Arthrography—Saul Heiser, M.D., Los Angeles.

10:10—Physical Restoration of Injuries of the Knee—John Mennell, M.D., Long Beach, by invitation.

10:30—Lower Extremity Injuries: Office Care—Limitations—Hazards—J. Minton Meherin, M.D., San Francisco.

10:50—Aseptic Necrosis of the Head of the Femur from Cortisone Used in Treatment for Other Conditions—Douglas D. Toffelmier, M.D., Oakland.

11:15—Question and Answer Period.

WEDNESDAY, MARCH 31

9:30 a.m.—Crystal Room
Lobby Floor

Joint Meeting with Section on Psychiatry and Neurology

9:30—Management of Acute Suicidal Patient in Medical Practice—Robert Litman, M.D., Los Angeles.
Discussion

- 10:00—**Disturbed Family Unit—A Problem for the General Practitioner**—Donald D. Jackson, M.D., Palo Alto.
Discussion
- 10:30—**The General Practitioner and the Adolescent Patient**—Wilson Yandell, M.D., San Francisco.
Discussion
- 11:00—**Role of the General Practitioner in After-Care of Former State Hospital Patients**—Elmer F. Galioni, M.D., Sacramento, by invitation.
Discussion
- 11:30—**Role of the General Practitioner in Prevention of Mental Disorder**—Allen J. Enelow, M.D., Pacific Palisades.
Discussion

TRANSMISSION OF MESSAGES

MESSAGE CENTER (781-4300)—Provided by the Pacific Telephone and Telegraph Company—Registration Desk, Lobby of Grand Ballroom, Lower Level, Fairmont Tower, is open from 8:30 a.m. until 5:00 p.m., and the Association will *attempt* to transmit messages to the individual physicians. Each physician should notify his own office of the exact times and meetings he plans to attend and the convention telephone number.

QUALIFICATIONS, REQUIREMENTS FOR REGISTRATION

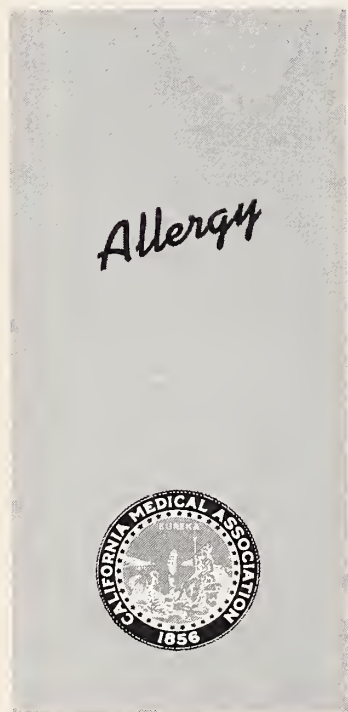
(a) All M.D.'s with credentials showing that they hold valid license to practice medicine. (Membership card in CMA; county medical society/association or AMA membership card.) (b) Medical students will be admitted upon presentation of credentials from their medical schools identifying them as medical students. (A membership card of the Student American Medical Association or letter from their dean's office.) (c) Medical secretaries will be admitted upon presentation of a letter from the physician-employer. (d) Pharmacist mates and other military personnel of a like grade will be admitted upon presentation of a letter requesting their admittance, written by their commanding officer. (e) Dentists (D.D.S.), doctors of veterinary medicine (D.V.M.), registered nurses (R.N.), student nurses, x-ray technicians, laboratory technicians, allied public health personnel, and others will be admitted provided they have proper identification. (f) All questions on admission will be passed upon by a member of the Committee on Registration who will be present at the desk.



LEO R. MELCHER
Chairman



LEO N. MELEYCO
Secretary



ALLERGY

Chairman.....LEO R. MELCHER, M.D., Redwood City
Vice-Chairman.....JOHN S. O'TOOLE, M.D., Riverside
Secretary.....LEO N. MELEYCO, M.D., San Jose

SUNDAY, MARCH 28

9:30 a.m.—Venetian Room
Lobby Floor

Joint Meeting with Sections on Anesthesiology, Internal Medicine, and Pediatrics

9:30—Bronchial Asthma—Irving Itkin, M.D., Denver, by invitation.

10:10—Atelectasis—William K. Hamilton, M.D., Iowa City, by invitation.

10:40—Coffee Break.

10:50—Respiratory Distress Syndrome—William H. Tooley, M.D., San Francisco, by invitation.

11:10—Respiratory Acidosis—Charles Carman, M.D., San Francisco.

11:50—Symposium on Therapy

Moderator: John Butler, M.D., San Francisco, by invitation

Members of the Panel: Charles Carman, M.D., San Francisco; Irving Itkin, M.D., Denver, by invitation; William K. Hamilton, M.D., Iowa City, by invitation; William H. Tooley, M.D., San Francisco, by invitation.

MONDAY, MARCH 29

9:30 a.m.—Garden Room
Lobby Floor

9:30—Quantitative Respiratory Challenge in Bronchial Asthma—Irving Itkin, M.D., Denver, by invitation.

9:50—A Possible Role for Nasal Secretions in Human Allergy—Jack Remington, M.D., Palo Alto.

10:10—A Review of Asthmatic Deaths—Benjamin Klau-man, M.D., North Hollywood.

10:30—The Influence on Skin Test Results of Antihistamines—Ordinarily Used Dosages—Julian L. Harwell, M.D., and Walter R. MacLaren, M.D., Pasadena.

10:50—A Demonstration of Antibodies to Milk Proteins by Radio-Immuno-Electrophoresis—Ernest M. Heimlich, M.D., Hollywood.

11:10—Hyposensitization: A Critical Review of Controlled Data—Oscar Frick, M.D., San Francisco, by invitation.

11:40—Business Meeting.

ANESTHESIOLOGY

Chairman.....GORDON C. LANGSDORF, M.D., La Jolla
 Vice-Chairman.....BRUCE M. ANDERSON, M.D., Oakland
 Secretary.....THOMAS W. MCINTOSH, M.D., Pasadena



GORDON C. LANGSDORF
 Chairman



THOMAS W. MCINTOSH
 Secretary

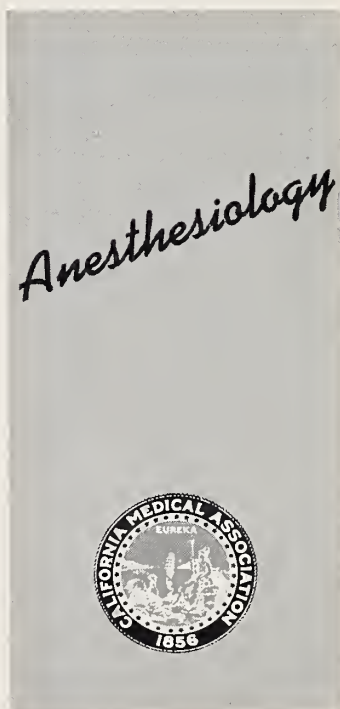
SUNDAY, MARCH 28 **9:30 a.m.—Venetian Room
 Lobby Floor**

*Joint Meeting with Sections on Allergy, Internal
 Medicine and Pediatrics*

- 9:30—Bronchial Asthma—Irving Itkin, M.D., Denver, by invitation.
- 10:10—Atelectasis—William K. Hamilton, M.D., Iowa City, by invitation.
- 10:40—Coffee Break.
- 10:50—Respiratory Distress Syndrome—William H. Tooley, M.D., San Francisco, by invitation.
- 11:10—Respiratory Acidosis—Charles Carman, M.D., San Francisco.
- 11:50— **Symposium on Therapy**
 Moderator: John Butler, M.D., San Francisco, by invitation
 Members of the Panel: Charles Carman, M.D., San Francisco; Irving Itkin, M.D., Denver, by invitation; William K. Hamilton, M.D., Iowa City, by invitation; William H. Tooley, M.D., San Francisco, by invitation.

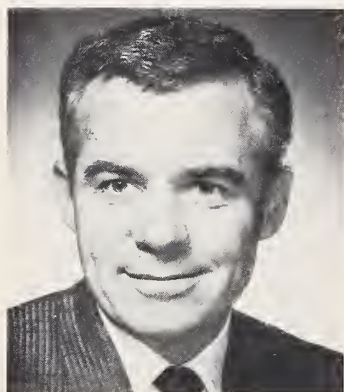
SUNDAY, MARCH 28 **2:00 p.m.—Garden Room
 Lobby Floor**

- 2:00—Facts and Fancy in Anesthesia Progress—Stuart C. Cullen, M.D., San Francisco.
- 2:25—Management of Anesthesia for the Post-Polio Patient—Howard T. Morse, Jr., M.D., Los Angeles.
- 2:50—Patient Monitoring: What and Why—or Vice Versa—Judson S. Denson, M.D., Los Angeles.
- 3:15—Winning Paper: California Society of Anesthesiologists' Annual Competition for Residents in Anesthesiology—To be announced.
- 3:30—Nebulanesthesia — David D. Cohen, M.D., Los Angeles, Robert O. Bauer, M.D., Santa Monica, Joseph P. Maguire, M.D., Redondo Beach, and Verne L. Brechner, M.D., Los Angeles; and Nicholas Soldo, M.D., Los Angeles, by invitation.
- 3:55—Application of Modern Science to the Practice of Anesthesiology—John P. Bunker, M.D., Palo Alto.
- 4:20—Summary and Discussion — William K. Hamilton, M.D., Iowa City, by invitation.
- 4:40—Business Meeting.

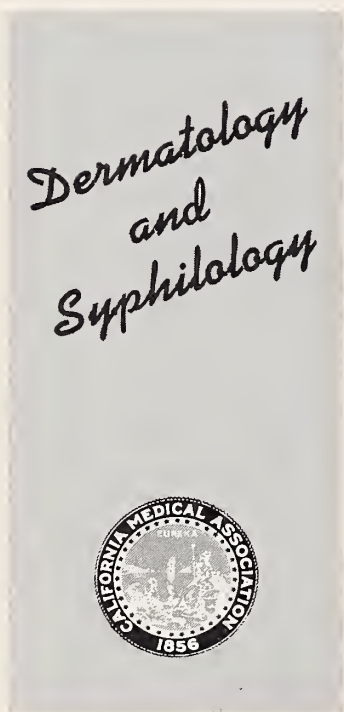




NORMAN E. LEVAN
Chairman



CHARLES G. STEFFEN
Secretary



DERMATOLOGY AND SYPHILOLOGY

Chairman.....NORMAN E. LEVAN, M.D., Bakersfield
Vice-Chairman.....ROBERT G. WALTON, M.D., Modesto
Secretary.....CHARLES G. STEFFEN, M.D., Covina

SATURDAY, MARCH 27—Pre-Convention Meeting

There will be a clinical meeting of the San Francisco Dermatological Society at 2:00 p.m., Saturday, March 27. The meeting will be held in the Dermatology Clinic (Clinics Building, Room 344) of the Herbert C. Moffitt Hospital, Arguello and Parnassus Avenues, University of California, San Francisco Medical Center.

Discussion of the cases will take place at 3:00 p.m., in the Main Auditorium of the Medical Sciences Building. This will be followed by a no-host cocktail party and dinner at the Officer's Club, Letterman General Hospital, at 6:00 p.m.

All dermatologists are invited by the San Francisco Dermatological Society to attend.

SUNDAY, MARCH 28

9:00 a.m.—French Room
Lobby Floor

- 9:00—Dermatoses Particular to Peru and Ecuador: A Photoclinic—Margaret Ann Storkan, M.D., Redondo Beach.
- 9:10—Treatment of Basal Cell Carcinoma of the Periorbital Skin with Radiation—G. Douglas Baldridge, M.D., Los Angeles.
- 9:30—Squamous Cell Carcinoma of the Fingers Presenting as Eczema—Bernard Gottlieb, M.D., and Ben A. Newman, M.D., Beverly Hills.
- 9:50—Intraepidermal Prickle Cell Carcinoma — Lyon Rowe, M.D., Los Angeles.
- 10:10—Induced Changes in the Junctional Component of Pigmented Nevi—Alvin J. Cox, M.D., Palo Alto and Robert G. Walton, M.D., Modesto.
- 10:30—Recess.
- 10:40—Recent Advances in Viral Chemotherapy and Chemoprophylaxis—C. Henry Kempe, M.D., Denver, Colorado, by invitation.
- 11:10—Early Cutaneous Lupus Erythematosus — Wiley Mitchell Sams, M.D., Miami Beach, Florida, by invitation.
- 11:30—Metastatic Basal Cell Carcinoma — Paul Hirsch, M.D., Beverly Hills, and Norman E. Levan, M.D., Bakersfield.
- 11:50—Recently Described Cutaneous Tumors—Richard Goodman, M.D., San Francisco.
- 12:10—Dimethylsulfoxide and Dimethylsulfoxide with Fluocinolone in the Treatment of Selected Dermatoses —Harold M. Schneidman, M.D., San Francisco; and Ross D. Bright, Palo Alto, by invitation.

Chairman.....IRWIN HARRIS, M.D., Los Angeles
Vice-Chairman.....THOMAS L. SOSS, M.D., San Mateo
Secretary.....G. HOWARD GOTTSCHALK, M.D., Los Angeles

9:30—**Conservative Surgical Management of Carcinoma of the Larynx** — Hans von Leden, M.D., Los Angeles.
Discussion

10:00—**Management of Tympani Perforations** — Gonzalo Obregon, M.D., Sacramento.
Discussion

10:30—**Sialography**—Irving White, M.D., Long Beach.
Discussion

11:00—**Cholesteatoma of the Maxillary Sinus** — Bernard Pogorel, M.D., Los Angeles.
Discussion

11:30—**Surgery of the Facial Nerve**—Lee Shahinian, M.D., Los Altos.
Discussion

12:00—**Business Meeting.**



IRWIN HARRIS
Chairman



G. HOWARD GOTTSCHALK
Secretary

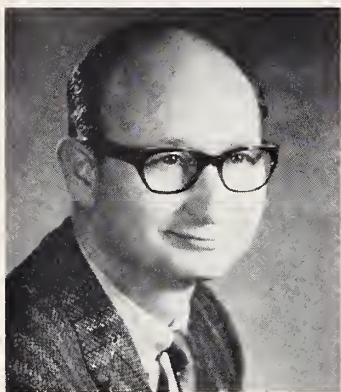
Registration and information desks are located in the Main Lobby of the Fairmont Hotel and in the Grand Ballroom Foyer, Lower Level, Fairmont Tower. *All members, guests, and visitors are requested to register immediately upon arrival.* There is no charge for registration. Registration desks are open Saturday through Wednesday. Admission to the general and section sessions and exhibit area is by badge only. Members wishing to vote in specialty sections must indicate appropriate section when registering; voting in other sections will not be allowed.

Ear, Nose and Throat

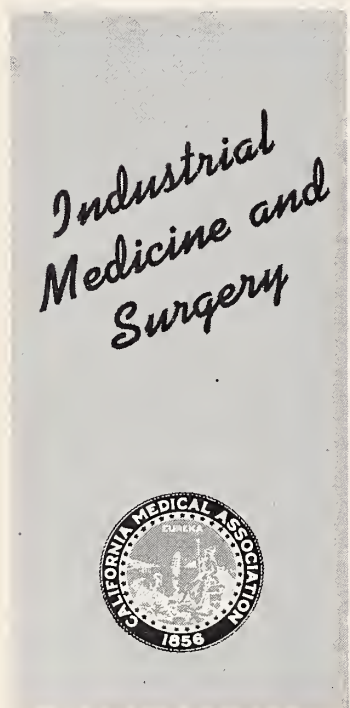




C. FREDERICK BURTON
Chairman



LEON R. RUDNICK
Secretary



INDUSTRIAL MEDICINE AND SURGERY

Chairman.....C. FREDERICK BURTON, M.D., Oakland
Vice-Chairman.....RUFUS J. WALKER, M.D., Los Angeles
Secretary.....LEON R. RUDNICK, M.D., San Leandro

MONDAY, MARCH 29

**9:30 a.m.—French Room
Lobby Floor**

Joint Meeting with Section on General Practice

Lower Extremity Problems

Moderator: C. Frederick Burton, M.D., Oakland

9:30—**Diagnosis of Internal Derangement of the Knee**—
J. Harold LaBriola, M.D., Los Angeles.

9:50—**Knee Arthrography**—Saul Heiser, M.D., Los Angeles.

10:10—**Physical Restoration of Injuries of the Knee**—John
Mennell, M.D., Long Beach, by invitation.

10:30—**Lower Extremity Injuries: Office Care — Limitations — Hazards** — J. Minton Meherin, M.D., San Francisco.

10:50—**Aseptic Necrosis of the Head of the Femur from Cortisone Used in Treatment for Other Conditions**—
Douglas D. Toffelmier, M.D., Oakland.

11:15—**Question and Answer Period.**

11:50—**Business Meeting.**

MONDAY, MARCH 29

**2:00 p.m.—Crystal Room
Lobby Floor**

Joint Meeting with Section on Physical Medicine

2:00—**A Most Unusual Decubitus Ulcer: Case Report** —
Alvin Glass, M.D., Vallejo, by invitation.

2:30—**Nerve Conduction Deficiencies in Patients with Chronic Renal Disease** — John H. Siegler, M.D., Vallejo, by invitation.

EXHIBITS

Technical Exhibits — Grand Ballroom, Lower Level, Fairmont Tower. See pages 63 to 69.

Scientific and Organizational Exhibits—Grand Ballroom Lower Level, Fairmont Tower. See page 39.

OBSTETRICS AND GYNECOLOGY

Chairman.....RALPH L. HOFFMAN, M.D., San Diego
Vice-Chairman.....KARL L. SCHAUPP, JR., M.D., San Francisco
Secretary.....LESTER T. HIBBARD, M.D., Los Angeles

TUESDAY, MARCH 30 **12:00 Noon—Crystal Room**
Lobby Floor

12:00—Joint Luncheon Meeting with the California Division of the American College of Obstetrics and Gynecology. Advance reservations are requested.

12:15—Overwhelming Obstetrical Infections at Term and Delivery—Irwin H. Kaiser, M.D., Salt Lake City, by invitation.

TUESDAY, MARCH 30

2:00—Pediatric Examination at the Time of Delivery—
Robert A. Sack, M.D., Whittier.

2:30—Varices and Varicocele in the Female — John Schaupp, M.D., San Francisco.

3:00—Amniocentesis in the Management of Erythroblastosis — Richard Bashore, M.D., Los Angeles, by invitation.

3:30—Hydatidiform Mole — Concepts of Management —
Fritz C. Westerhout, Jr., M.D., Newport Beach.

4:00—**Chairman's Address**—Ralph L. Hoffman, M.D., San Diego.

4:30—Business Meeting.

EMERGENCY CALLS AND MESSAGES

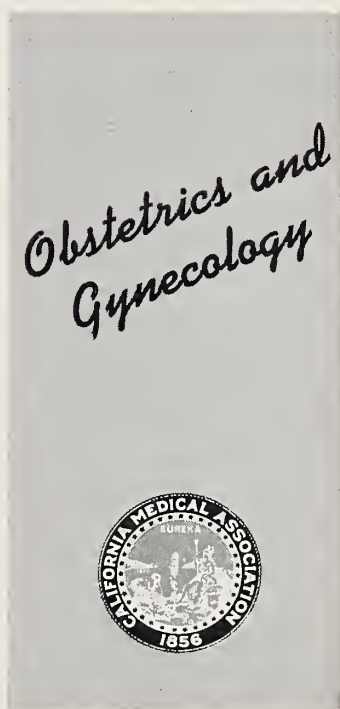
For emergency calls and messages call number: 781-4300 from 8:30 a.m. through 5:00 p.m., Saturday, March 27 through Wednesday, March 31, 1965.



RALPH L. HOFFMAN
Chairman



LESTER T. HIBBARD
Secretary





BYRON H. DEMOREST
Chairman



RICHARD KRATZ
Secretary

Ophthalmology



OPHTHALMOLOGY

Chairman.....BYRON H. DEMOREST, M.D., Sacramento
Vice-Chairman.....VICTOR G. FELLOWS, M.D., San Francisco
Secretary.....RICHARD KRATZ, M.D., Van Nuys

MONDAY, MARCH 29 9:30 a.m.—Vanderbilt Room
Terrace Floor

9:30—Virus-Cell Interaction with Particular Reference to
Psittacosis and Herpes Simplex—Robert R. Wag-
ner, M.D., Baltimore, by invitation.

10:00—Ocular Manifestations of Smallpox and Accidental
Vaccinia—C. Henry Kempe, M.D., Denver, by in-
vitation.

10:30— **Symposium**

Herpes Simplex Keratitis

Moderator: Byron H. Demorest, M.D., Sacramento

10:30—Immunodiagnosis — Thomas H. Pettit, M.D., Los
Angeles, and Samuel J. Kimura, M.D., Berkeley.

10:40—Pathology of Herpetic Keratouveitis — Michael J.
Hogan, M.D., San Francisco, and Samuel J. Kimura,
M.D., Berkeley.

10:55—Recess.

11:00—Chemotherapy—Ilse K. Jawetz, M.D., and Phillips
Thygeson, M.D., San Francisco; and Robert P.
Burns, M.D., Portland, by invitation.

11:30—Complications of Corticosteroid Therapy — Robert
P. Burns, M.D., Portland, by invitation; and Phil-
lips Thygeson, M.D., San Francisco.

11:45—Clinical Aspects of Inclusion Conjunctivitis — An
Oculo-Genital Disease—Chandler R. Dawson, M.D.,
San Francisco, by invitation.

12:00—Laboratory Findings in Inclusion Conjunctivitis—
An Oculo-Genital Disease—Julius Schachter, Ph.D.,
San Francisco, by invitation.

12:15—Business Meeting.

BADGES: It is important that badges be worn at all
times. Admission to scientific meetings is by badge only.

DELEGATES: For list of delegates, meeting times,
places and agenda, see pages 41 to 46.

TELEVISION SYMPOSIA are scheduled in the morn-
ings in the Terrace Room, Fairmont Hotel. See pro-
gram synopsis, page 38.

Meeting Times and Places: See chart on page 12 for
exact times and places of general and section meetings.

ORTHOPEDICS

Chairman.....G. WILBUR WESTIN, M.D., Los Angeles
Vice-Chairman.....JOHN F. COWAN, M.D., San Francisco
Secretary.....DAVID C. MONSEN, M.D., Los Angeles

SUNDAY, MARCH 28 **9:30 a.m.—Garden Room
Lobby Floor**

- 9:30—Skiing Injuries are Different—John Cowan, M.D., San Francisco.
- 9:55—Your Liability on the Ski Slopes—Jack Miller, LL.B., San Francisco, by invitation.
- 10:20—Effects of Viruses on Muscles, with Consideration of the Role of Virus Infections on the Growth and Physical Development of Children—Robert Bingham, M.D., Riverside, by invitation.
- 10:45—Osteogenic Sarcoma in Children — Robert J. McKenna, M.D., and Charles P. Schwinn, M.D., Los Angeles; and Norman L. Higinbotham, M.D., New York, by invitation.
- 11:10—Paralytic Dislocations of the Hip—Edwin R. Schottstaedt, M.D., San Francisco, and Donald Bjornson, M.D., San Francisco, by invitation.
- 11:35—Chairman's Address: Acetabuloplasty for the Dysplastic Hip—G. Wilbur Westin, M.D., Los Angeles.
- 12:00—Business Meeting.



G. WILBUR WESTIN
Chairman



DAVID C. MONSEN
Secretary

TRANSMISSION OF MESSAGES

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Orthopedics

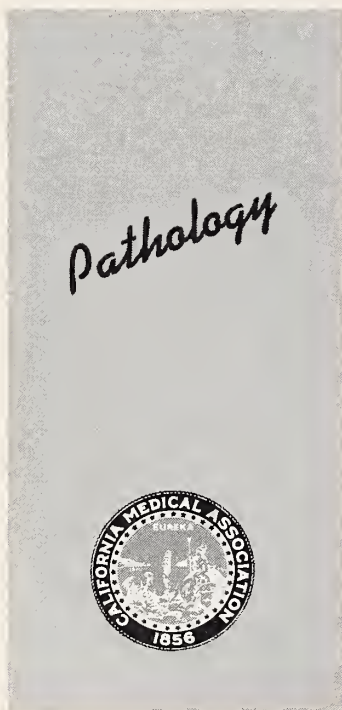




MELVIN B. BLACK
Chairman



DONALD L. ALCOTT
Secretary



PATHOLOGY

Chairman.....MELVIN B. BLACK, M.D., San Francisco

Vice-Chairman.....WILLIAM C. HERRICK, M.D., San Diego

Secretary.....DONALD L. ALCOTT, M.D., San Jose

SATURDAY, MARCH 27

**2:00 p.m.—Hunt Room
Mezzanine**

2:00—Standards of Crossmatching—Harry J. Sacks, M.D.,
Los Angeles.

Discussion

2:20—Experience with an Optimal Crossmatch Technique
—Alden R. Heupel, M.D., Robert S. Cox, Jr., M.D.,
and Barbara Peters, B.A., San Jose, all by invitation.

Discussion

2:50—The Measurement of Thyroxin Binding Globulin
Using an Electrophoretic Radioiodine Method —
Samuel Nerenberg, M.D., and Kathleen M. Stevens,
A.B., San Francisco, both by invitation.

Discussion

3:10—Fluorometric Titration of Calcium—Normal Values
and Critical Factors—Donald L. Bittner, M.D., San
Francisco; and Diane M. Bartolini, B.A., San Fran-
cisco, by invitation.

Discussion

3:30—Intermission.

3:45—Spot Checking Quality Control—Alvin E. Lewis,
M.D., San Francisco.

4:00—Experience with Provera Trial Therapy of Ade-
nomatous Hyperplasias and Adenocarcinomas of the
Endometrium—Livia Ross, M.D., Oakland.

Discussion

4:20—Atypical Inguinal Lymphadenitis: ? A Neoplastic
Lesion—Jorge Franco, M.D., Cornelius F. Kalman,
M.D., and Leslie R. Grams, M.D., San Jose; and
Jackson T. Crane, M.D., and Max R. Earle, M.D.,
San Jose, both by invitation.

Discussion

4:45—Business meeting and election of officers.

5:00—Semi-Annual Meeting of the California Society of
Pathologists—Jesse Carr, M.D., San Francisco, pre-
siding.

7:00—Dinner Meeting of the California Society of Pathol-
ogists.

SUNDAY, MARCH 28 9:00 a.m.—5:00 p.m.—Gold Room
Lobby Floor

CMA Committee on Cancer

Annual Cancer Conference for Pathologists

ANIMAL TUMORS

Moderator: Charles Barron, D.V.M., Ph.D., Philadelphia,
by invitation

Those who wish slides and protocols for the conference (cost \$25.00) are requested to pre-register with Weldon K. Bullock, M.D., Registrar, Tumor Tissue Registry, CMA Committee on Cancer, Los Angeles County Hospital, 1200 N. State Street, Los Angeles 33. The \$25 fee includes registration. For those who wish to attend the conference the fee is \$25. There is no charge for residents and interns.

**QUALIFICATIONS/REQUIREMENTS FOR
REGISTRATION**

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PRESIDENTS'

RECEPTION

and

DINNER-DANCE

▪

Sunday, March 28

▪

Reception

Gold Room, 7:00 p.m.

▪

Dinner-Dance

Venetian Room, 8:00 p.m.

▪

FORMAL DRESS

OPTIONAL

Tickets will be on sale
in the Main Lobby,
Fairmont Hotel.

**LABORATORY
EXAMINATION
PROGRAM**

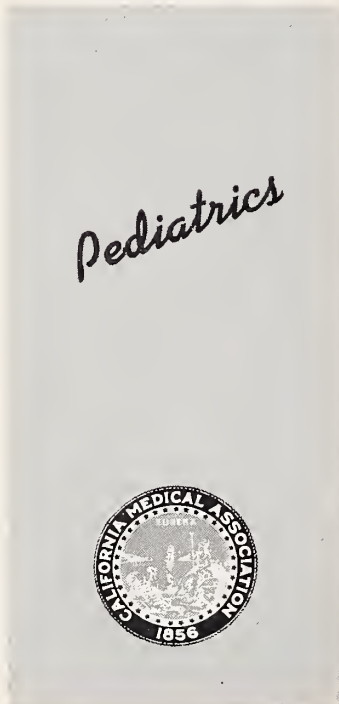
The California Society of Pathologists will conduct a laboratory examination program in the Grand Ballroom Bar, Lower Level, Fairmont Tower. All physicians are invited to be examined.



LEO S. BELL
Chairman



RICHARD L. ANDERSON
Secretary



PEDIATRICS

Chairman.....LEO S. BELL, M.D., San Mateo
Vice-Chairman.....JACK W. BILLS, M.D., Van Nuys
Secretary.....RICHARD L. ANDERSON, M. D., Eureka

SUNDAY, MARCH 28

**9:30 a.m.—Venetian Room
Lobby Floor**

*Joint Meeting with Sections on Allergy, Anesthesiology,
and Internal Medicine*

9:30—**Bronchial Asthma**—Irving Itkin, M.D., Denver, by invitation.

10:10—**Atelectasis**—William K. Hamilton, M.D., Iowa City, by invitation.

10:40—**Coffee Break.**

10:50—**Respiratory Distress Syndrome**—William H. Tooley, M.D., San Francisco, by invitation.

11:10—**Respiratory Acidosis**—Charles Carman, M.D., San Francisco.

11:50— **Symposium on Therapy**

Moderator: John Butler, M.D., San Francisco, by invitation

Members of the Panel: Charles Carman, M.D., San Francisco; Irving Itkin, M.D., Denver, by invitation; William K. Hamilton, M.D., Iowa City, by invitation; William H. Tooley, M.D., San Francisco, by invitation.

SUNDAY, MARCH 28

**12:30 p.m.—California Room
Mezzanine**

12:30—**Pediatricians' Luncheon and Panel Discussion.** Advance reservations are necessary and may be made with Richard Anderson, M.D., 636 Harris Street, Eureka. Price \$6.00.

Common Goals of Section on Pediatrics and the State Federation of Pediatric Societies

Moderator: Leo S. Bell, M.D., San Mateo

Members of the Panel: Glenn Austin, M.D., Los Altos, and Charles Cutler, M.D., Sacramento.

2:00—**Business Meeting of the Council of Pediatric Societies.**

WEDNESDAY, MARCH 31 2:00 p.m.—Florentine Room
Mezzanine

Moderator: Leo S. Bell, M.D., San Mateo

2:00—Natural Resistance to Viral Infection—Robert R. Wagner, M.D., Baltimore, by invitation.

2:30—The Future in Immunizing with Attenuated Strains of the Viral Respiratory Organisms — George Gee Jackson, M.D., Chicago, by invitation.

3:00—A New Look at Smallpox Vaccination — C. Henry Kempe, M.D., Denver, by invitation.

3:30—The Forgotten Virus: Rabies—Hilary Koprowski, M.D., Philadelphia, by invitation.

4:00—Questions and Answers.

4:30—Business Meeting.

REGISTRATION

Registration and information desks are located in the Main Lobby of the Fairmont Hotel and in the Grand Ballroom Foyer, Lower Level, Fairmont Tower. *All members, guests, and visitors are requested to register immediately upon arrival.* There is no charge for registration. Registration desks are open Saturday through Wednesday. Admission to the general and section sessions and exhibit area is by badge only. Members wishing to vote in specialty sections must indicate appropriate section when registering; voting in other sections will not be allowed.

QUALIFICATIONS, REQUIREMENTS FOR REGISTRATION

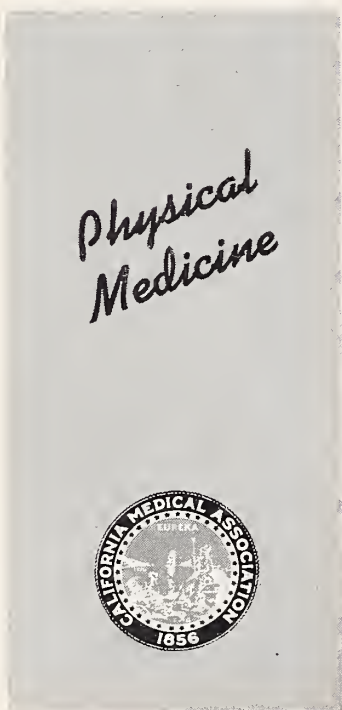
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O. LEONARD HUDDLESTON
Chairman



RENE CAILLIET
Secretary



PHYSICAL MEDICINE

Chairman O. LEONARD HUDDLESTON, M.D., Santa Monica
Vice-Chairman GREGORY BARD, M.D., San Francisco
Secretary RENE CAILLIET, M.D., Los Angeles

MONDAY, MARCH 29

9:30 a.m.—Crystal Room
Lobby Floor

9:30—Treatment of Severe Burns—Carrie E. Chapman, M.D., Los Angeles; and Ben R. Meyer, M.D., Los Angeles, by invitation.

10:00—Muscle Paralysis in Herpes Zoster—David Rubin, M.D., Los Angeles; and Robert D. Fushfeld, M.D., Los Angeles, by invitation.

10:30—Prognostic Signs in Stroke Recovery Patients—S. Malvern Dorinson, M.D., San Francisco.

11:00—Studies on Correlations Between Oscillometry, Plethysmography and Skin Thermometry—Melvin J. Goldberg, M.D., Helen V. Skowlund, M.S., and William G. Kubicek, Ph.D., Oakland, all by invitation.

MONDAY, MARCH 29

2:00 p.m.—Crystal Room
Lobby Floor

Joint Meeting with Section on Industrial Medicine and Surgery

2:00—A Most Unusual Decubitus Ulcer: Case Report — Alvin Glass, M.D., Vallejo, by invitation.

2:30—Nerve Conduction Deficiencies in Patients with Chronic Renal Disease — John H. Siegler, M.D., Vallejo, by invitation.

3:00—Business Meeting.

MOTION PICTURE SYMPOSIA will be shown in the afternoons in the Terrace Room, Fairmont Hotel. See program synopsis, page 38.

PREVENTIVE MEDICINE AND PUBLIC HEALTH

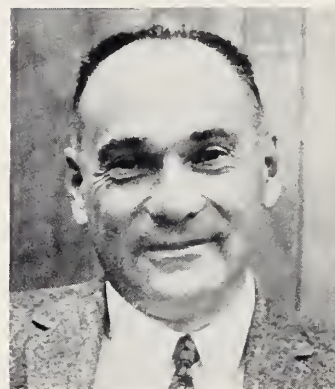
Chairman.....MORRIS L. GROVER, M.D., Pasadena
Vice-Chairman.....BYRON O. MORK, M.D., Los Angeles
Secretary.....HENRIK L. BLUM, M.D., Martinez

TUESDAY, MARCH 30 **1:30 p.m.—Garden Room
Lobby Floor**

- 1:30—Immunizations for Industrial Populations—George Gee Jackson, M.D., Chicago, by invitation.
Discussion
- 2:10—The Control and Implications of Alcoholism in Industrial Populations—Arthur C. Hollister, Jr., M.D., Berkeley.
Discussion
- 2:50—An Advanced Program for Tuberculosis Control in California—Frank Hesse, M.D., Berkeley.
Discussion
- 3:20—Recess and Business Meeting.
- 3:30—Rabies Prophylaxis—Hilary Koprowski, M.D., Philadelphia, by invitation.
Discussion
- 4:10—Genetic Counselling: A Health Department Service to Physicians—Elizabeth Jolly, M.D., Martinez.
Discussion



MORRIS L. GROVER
Chairman

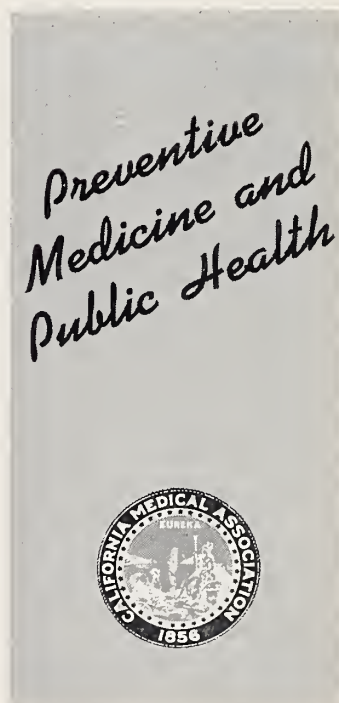


HENRIK L. BLUM
Secretary

WEDNESDAY, MARCH 31 **1:20 p.m.—Garden Room
Lobby Floor**

- 1:20—Counselling Services for Families of Patients with Heart Disease—Jack A. Sheinkopf, M.D., Beverly Hills.
- 1:45—Incidence and Mortality of Poliomyelitis in San Francisco, 1945-1955 — Piero O. Mustacchi, M.D., San Francisco.
- 2:05—Diet and Cholesterol Levels in Seventh-day Adventists—John A. Scharfenberg, M.D., San Bernardino, by invitation.
- 2:25—Venereal Disease Education for Teen-agers—Walter H. Smartt, M.D., Los Angeles, by invitation.
- 2:45—Homemaker Teachers in Public Health — Winea Simpson, M.D., San Bernardino, by invitation.
- 3:05—Medical Care Costs of Old Age Security Recipients in Santa Cruz County—Henry Anderson, M.P.H., Berkeley, by invitation.

(Continued on Next Page)



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3:30—**Measuring the Quality of Hospital Services by an Index**—Bruce A. Walter, M.D., Berkeley.

3:55—**Family Medicine and Poverty in California**—Leslie Corsa, M.D., and Paul F. O'Rourke, M.D., Berkeley; Allan M. Butler, M.D., and Belle Dale Poole, M.D., Berkeley, both by invitation.

4:15—

Panel

Family Medicine and Poverty in California

Moderator: Leslie Corsa, M.D., Berkeley

Members of the Panel: Allan M. Butler, M.D., Berkeley, by invitation; Paul F. O'Rourke, M.D., Berkeley; and Belle Dale Poole, M.D., Berkeley, by invitation.

TRANSMISSION OF MESSAGES

MESSAGE CENTER (781-4300)—Provided by the Pacific Telephone and Telegraph Company—Registration Desk, Lobby of Grand Ballroom, Lower Level, Fairmont Tower, is open from 8:30 a.m. until 5:00 p.m., and the Association will *attempt* to transmit messages to the individual physicians. Each physician should notify his own office of the exact times and meetings he plans to attend and the convention telephone number.

PSYCHIATRY AND NEUROLOGY

Chairman.....ALLEN J. ENELOW, M.D., Pacific Palisades

Vice-Chairman.....GEORGE G. ABE, M.D., Norwalk

Secretary.....WERNER M. MENDEL, M.D., Los Angeles

WEDNESDAY, MARCH 31 **9:30 a.m.—Crystal Room**
Lobby Floor

Joint Meeting with Section on General Practice

9:30—Management of Acute Suicidal Patient in Medical Practice—Robert Litman, M.D., Los Angeles.
 Discussion

10:00—Disturbed Family Unit—A Problem for the General Practitioner—Donald D. Jackson, M.D., Palo Alto.
 Discussion

10:30—The General Practitioner and the Adolescent Patient—Wilson Yandell, M.D., San Francisco.
 Discussion

11:00—Role of the General Practitioner in After-Care of Former State Hospital Patients—Elmer F. Galioni, M.D., Sacramento, by invitation.
 Discussion

11:30—Role of the General Practitioner in Prevention of Mental Disorder—Allen J. Enelow, M.D., Pacific Palisades.
 Discussion

12:00—Business Meeting.

WEDNESDAY, MARCH 31 **2:00 p.m.—Crystal Room**
Lobby Floor

2:00— **Symposium**

The New Medical Frontier—Brain and Behavior

Moderator: Richard D. Walter, M.D., Los Angeles

1. **Electrical Studies of Man's Brain Relating to Behavior**—Richard D. Walter, M.D., Los Angeles.
2. **Anatomical Substrate of Behavior** — Arnold B. Scheibel, M.D., Los Angeles, by invitation.
3. **Endocrines and Behavior** — William F. Ganong, M.D., San Francisco, by invitation.
4. **Electrical Correlates of Behavior**—Frank Morrell, M.D., Palo Alto, by invitation.

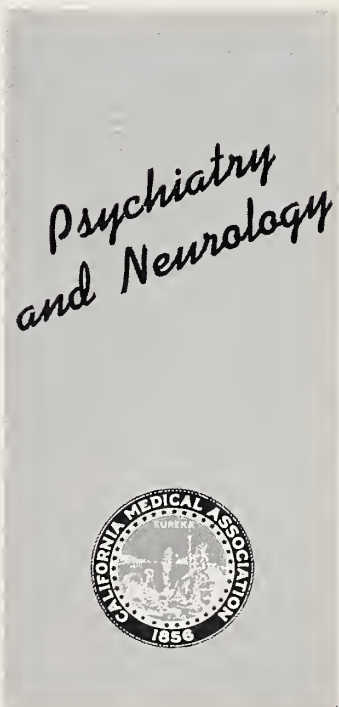
Discussion



ALLEN J. ENELOW
Chairman



WERNER M. MENDEL
Secretary

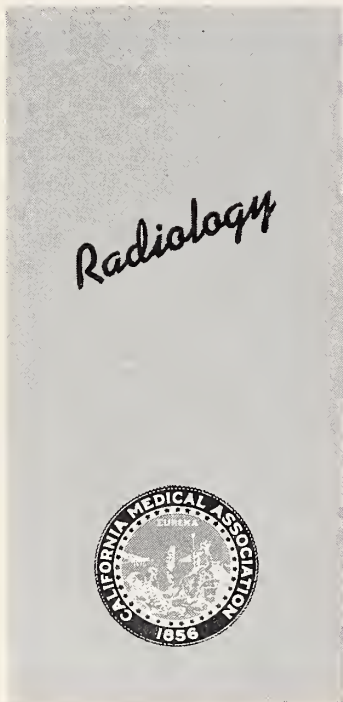




JOHN L. GWINN
Chairman



VICTOR G. MIKITY
Secretary



RADIOLOGY

Chairman.....JOHN L. GWINN, M.D., Los Angeles

Vice-Chairman.....JOHN C. BENNETT, M.D., San Francisco

Secretary.....VICTOR G. MIKITY, M.D., Los Angeles

SUNDAY, MARCH 28

9:30 a.m.—Vanderbilt Room
Terrace Floor

9:30—Cranial Synostosis in Resistant Rickets — Richard Schreiber, M.D., and Lois June Smart, M.D., Los Angeles.

9:50—Routine Panarteriography in Evaluation of Cerebrovascular Insufficiency — F. William Blaisdell, M.D., Albert D. Hall, M.D., Arthur N. Thomas, M.D., and Steven Ross, M.D., San Francisco.

10:10—Radiologic Signs of Skin Disease — Bernard J. O'Laughlin, M.D., Los Angeles.

10:30—Recess.

10:40—Roentgen Signs of Intestinal Necrosis—Leo Rigler, M.D., Los Angeles; and William Pogue, M.D., Los Angeles, by invitation.

11:00—Review of Perforations of Abdominal Viscera in Infancy—Jacob J. Parker, M.D., by invitation; and Victor Mikity, M.D., Los Angeles.

11:20—Renal Puncture—A Neglected Adjunct to the Diagnosis of Renal Masses—Elmer Ng, M.D., Redwood City.

11:40—Bronchial Arteriography—John W. Horns, M.D., Los Angeles, by invitation.

12:00—Vertebral Arteriovenous Fistula—Thomas H. Newton, M.D., San Francisco.

12:20—Business Meeting.

SUNDAY, MARCH 28

1:30 p.m. Vanderbilt Room
Terrace Floor

1:30—The Importance of Position in the Roentgen Diagnosis of Hiatal Hernia — Stanley B. Reich, M.D., San Francisco.

1:50—Basal Cell Nevus Syndrome—Peter Burgess, M.D., San Francisco.

2:10—A Technique for Percutaneous Transhepatic Cholangiography—James J. McCort, M.D., San Jose.

2:30—Recess—Annual Meeting of the California Radiological Society.

UROLOGY

Chairman.....MICHAEL J. FEENEY, M.D., San Diego
Vice-Chairman.....CARL BURKLAND, M.D., Sacramento
Secretary.....CARL K. PEARLMAN, M.D., Santa Ana

**TUESDAY, MARCH 30 10:00 a.m.—Florentine Room
 Mezzanine**

10:00— **Panel Discussion**

**What's New in the Treatment of Urinary Tract
 Infection**

Moderator: Thomas Stamey, M.D., Santa Clara

Members of the Panel: Thomas Stamey, M.D., and Duncan
 E. Govan, M.D., Santa Clara; Henry D. Brainerd,
 M.D., and Ernest Jawetz, M.D., San Francisco.

**TUESDAY, MARCH 30 2:00 p.m.—Florentine Room
 Mezzanine**

2:00—Arteriovenous Fistula of the Kidney Following Kid-
 ney Biopsy—Joseph J. Kaufman, M.D., Los Angeles.

2:15—Recent Advances in the Management of Male Infer-
 tility—Julius H. Winer, M.D., Beverly Hills.

2:30—Retroperitoneal Fibrosis: End Product or Entity?
 —Jay R. Longley, M.D., and Joseph Bush, M.D.,
 Newport Beach.

2:45—A Clinical Evaluation of Nalidixic Acid (Neg-
 Gram) and Methenamine Mandelate and Sulfamethizole (Mesulfin)—Roger W. Barnes, M.D., and
 Robert T. Bergman, M.D., Los Angeles; Henry
 Hadley, M.D., Glendale; and Douglas K. Potts,
 M.D., Los Angeles, by invitation.

3:00—Intermission.

3:15—Business Meeting.

3:30—Systems for Maintenance of Urinary Sterility after
 Prostatectomy — Frank Hinman, Jr., M.D., San
 Francisco.

3:45—Management of Cord Bladder Today — A. Estin
 Comarr, M.D., Long Beach, by invitation.

4:00—Hemospermia — Edward W. Beach, M.D., Sacra-
 mento.

4:15—Pregnancy and Urinary Calculi — Arjan D. Amar,
 M.D., Walnut Creek.

4:30—Motion Picture: Endoscopic Photography — Robert
 O. Pearman, M.D., Encino.

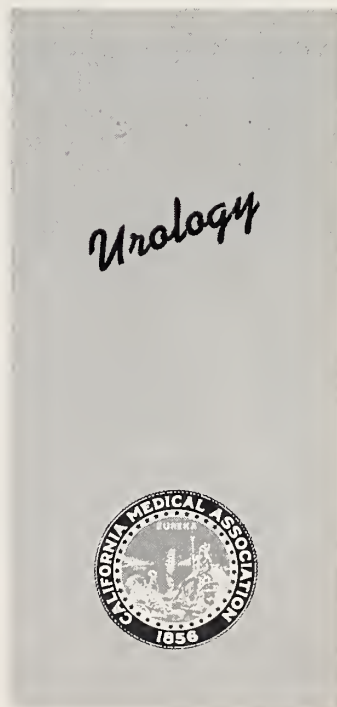
5:00—Motion Picture: Arteriovenous Fistula of the Kid-
 ney—Joseph J. Kaufman, M.D., Los Angeles.



MICHAEL J. FEENEY
Chairman



CARL K. PEARLMAN
Secretary



COLOR TELEVISION PROGRAM

Terrace Room • Fairmont Hotel

MONDAY THROUGH WEDNESDAY
mornings

MARCH 29 THROUGH 31, 1965

PLANNING COMMITTEE

John M. Erskine, M.D., Chairman
John R. Gamble, M.D.
Frank W. Spicer, M.D.

Closed Circuit Television programs will be offered Monday, Tuesday and Wednesday mornings in the Terrace Room, Fairmont Hotel. Each program will have a Moderator and Panel of Discussants present at the Fairmont Hotel with operative procedures and patient interviews or demonstrations televised from University of California, San Francisco Medical Center. Following is a list of the programs. The complete Color Television Program giving descriptions and listings of moderators, surgeons and panels will be available at the Registration Desk at the time of the meeting.

MONDAY, MARCH 29 9:00 a.m. to 10:30 a.m.
Moderator: Ralph D. Cressman, M.D., Palo Alto
Surgeon: Edwin G. Clausen, M.D., Oakland
Operation for Peptic Ulcer

10:30 a.m. to 12:00 noon
Moderator: John V. Carbone, M.D., San Francisco
Newer Diagnostic Methods in Gastroenterology
The Esophageal Motility Test
The Gastroduodenal Fiberscope
Technique and Application of Small Intestinal Mucosal Biopsy

TUESDAY, MARCH 30 9:00 a.m. to 10:30 a.m.
Moderator: Leon Goldman, M.D., San Francisco
Surgeon: Horace J. McCorkle, M.D., San Francisco
Thyroidectomy

10:30 a.m. to 12:00 noon
Moderator: Lot D. Howard, Jr., M.D., San Francisco
Surgeon: Robert A. Chase, M.D., Palo Alto
Care of Lacerations of Face and Hands

WEDNESDAY, MARCH 31 9:00 a.m. to 10:30 a.m.
Moderator: Peter H. Forsham, M.D., San Francisco
Short Cuts in Endocrinology

10:30 a.m. to 12:00 noon
Moderator: John J. Sampson, M.D., San Francisco
Recent Technical Advances in Cardiology
Cardiac Monitoring Cardiac Pacemakers
Cardioversion "Portometer" Blood Pressure Monitoring

Partial listing of film program:

MOTION PICTURE PROGRAM

Terrace Room • Fairmont Hotel

SUNDAY THROUGH WEDNESDAY
afternoons

MARCH 28 THROUGH 31, 1965

PLANNING COMMITTEE

John E. Connolly, M.D., Chairman
John M. Erskine, M.D.
Richard E. Gardner, M.D.
W. Morris H. Noble, M.D.
Edgar A. Storli, M.D.

Six film symposia will be presented, each utilizing about two-thirds of the time for projection of films, and one-third for discussions, questions and answers.

Be sure to read the **SPECIAL MOTION PICTURE PROGRAM** distributed at the time of registration with complete listing of films, descriptions, moderators, discussants and time schedules.

SUNDAY, MARCH 28 2:00 p.m. to 5:00 p.m.
SURGERY

Moderator: John E. Connolly, M.D., Palo Alto
Vagotomy and Pyloroplasty for Perforated and for Bleeding Duodenal Ulcer
Implantation of Cardiac Pacemaker
Carcinoma of Cecum and Ascending Colon—Silent, Obstructing, Perforated
Femoro-Popliteal Bypass with Venous Autograft

MONDAY, MARCH 29 2:00 p.m. to 4:00 p.m.
MEDICINE

Moderator: To be announced
Clinical Entities: Addison's Disease
Jugular Venous Pulse
Pulmonary Emphysema

4:00 p.m. to 5:00 p.m.
OBSTETRICS AND GYNECOLOGY
Moderator: Albert E. Long, M.D., San Francisco
Film titles to be announced

TUESDAY, MARCH 30 2:00 p.m. to 3:00 p.m.
PEDIATRICS

Moderator: Herbert C. Schwartz, M.D., Palo Alto, by invitation
Fetal and Neonatal Circulation
Kernicterus and Its Prophylaxis

3:00 p.m. to 5:00 p.m.
MEDICINE AND GENETICS
Moderator: W. Morris H. Noble, M.D., San Francisco
Medical Genetics Breath of Life
The Diagnosis of Viral Meningitis

WEDNESDAY, MARCH 31 2:00 p.m. to 4:00 p.m.
GENERAL

Moderator: Edgar A. Storli, M.D., San Mateo
Proctosigmoidoscopy: A Part of the Physical Examination
Diagnosis and Therapy with Radiation
Adrenalectomy

SCIENTIFIC AND ORGANIZATIONAL EXHIBITS

Scientific Exhibits

Grand Ballroom, Fairmont Tower

California Epilepsy Society, Los Angeles. Forty drugs used in the treatment of epilepsy are displayed, giving indications, dosages and length of action. Also shown are EEG tracings.

Economics and Outpatient Surgery—John B. Dillon, M.D., Los Angeles, and David D. Cohen, M.D., Los Angeles. This exhibit is a series of charts, posters and graphs showing comparisons of costs for surgical procedures in outpatients and inpatients.

Diagnosis and Treatment of Galactosemia in Children—Richard Koch, M.D., George Donnell, M.D., Ellen Lieberman, M.D., Los Angeles; and Betty Graliker, A.C.S.W., Karol Fishler, Ph.D., and Phyllis Acosta, M.D., Los Angeles, by invitation. This exhibit emphasizes the importance of early diagnosis and careful and continuing dietary control of galactosemia. Panels are utilized for displaying the biochemical structure and metabolic fate of galactose in galactosemia. Illustrations and charts show the pathologic consequences of galactosemia, the genetic pattern, diagnostic technique, and results of treatment.

Sulfamethoxazole in Beta-Hemolytic Streptococcal Infections—Jan Alban, M.D., San Francisco. The importance of routine bacteriologic studies in pediatric patients with upper respiratory infections will be shown and the technique employed described.

A three-year clinical and bacteriologic study of sulfamethoxazole involving over 200 pediatric subjects with beta-hemolytic streptococcal infections will be presented. The therapeutic results obtained with sulfamethoxazole, as reflected in clinical improvement and bacteriologic conversion rate, will be presented and compared to those generally reported with penicillin, erythromycin and various broad-spectrum antibiotics.

The possible role of a sulfonamide in the management of beta-hemolytic streptococcal infections and the rationale for its use, particularly in children, will be discussed. Photomicrographs and photographs of the affected structures will be shown.

Kidney Transplant—Medical Research Association of California, Hollywood, by invitation. This exhibit emphasizes the importance of medical research, using for an example the history of kidney transplants.

Cancer Chemosurgery — Theodore A. Tromovitch, M.D., San Francisco. Cancer chemosurgery is described, showing methods, types of cases, and results of treatment in over three hundred cases.

The Hand in the Differential Diagnosis of Arthritis—Howard N. Seltzer, M.D., Bethesda, by invitation. This exhibit displays a series of life-like moulages of hands exhibiting the anatomical and physiological characteristics of rheumatoid ar-

thritis, and xanthoma tendinosum, respectively, in different individuals. Another series of hands illustrates the effect of corticosteroid therapy on joints in rheumatoid arthritis. Below each of these hands is an illuminated x-ray, taken at the time each model hand was prepared exhibiting its detailed bone and joint pathology.

Air Embolism in the Dog—Charles C. Wycoff, M.D., San Francisco. Recordings will be played for the heart sounds during normal pre-embolism, slow and fast air embolism, arrhythmia, and post-embolism. Illustrations will show the variations of pressure in the systemic and pulmonary vessels as well as the changes in the EKG.

Twenty-four Hour Neutralization: How It Can Be Best Accomplished in the Ulcer Patient—J. Alfred Rider, M.D., San Francisco. Neutralization of acid gastric juice is of the greatest importance in the healing of a peptic ulcer and an attempt should be made to accomplish this during the entire 24-hour period. The effectiveness of diet, milk, milk and cream, non-fat milk, standard antacids, and anticholinergic agents in accomplishing this are demonstrated objectively by continual intragastric pH measurements.

It is concluded that skimmed milk is as effective as milk or milk and cream; antacids rarely last more than 45 to 60 minutes; anticholinergics are rarely effective for more than 90 minutes. Medical failure is usually caused by inadequate 25-hour neutralization of gastric acidity.

California Maternal Mortality Survey—William B. Thompson, M.D., Hollywood. A summary of maternal mortality statistics in the State of California over a six and one-half year period presented in the form of a critical review of the causes of death. Standard nomenclature is used to describe the categories. A three-dimensional model of a graveyard graphically illustrates the distribution of causes of death.

Social Security Disability Insurance—Benjamin Lieberman, M.D., Oakland. This exhibit will display charts depicting the principles in disability in evaluation and data pertaining to the federal disability insurance program under Social Security.

Organizational Exhibits

Foyer, Grand Ballroom, Fairmont Tower

California Medical Association Physician Placement Service—The Coordinator of the Physician Placement Service will be on hand throughout the meeting to discuss opportunities for practice in California and to assist those having openings they wish to list in the Placement Bulletin.

Medicine and Religion—The Committee on Medicine and Religion, California Medical Association. The purpose of this exhibit is to stimulate interest and offer assistance to county medical societies.



MRS. LYLE F. MURPHY, *President*



MRS. GEORGE J. BOWER, *President-Elect*

WOMAN'S AUXILIARY

Thirty-Fifth Annual Convention

MARCH 28 to 31, 1965

Headquarters: Fairmont Hotel, San Francisco

Convention Chairman: MRS. EDMUND MAHON

Convention Co-Chairman: MRS. LLOYD GILLIN

REGISTRATION—Empire Room, Fairmont Hotel

Sunday, March 28—9:00 a.m. to 4:00 p.m.

Monday, March 29—8:00 a.m. to 4:00 p.m.

Tuesday, March 30—8:30 a.m. to noon

SATURDAY, MARCH 27

7:30 p.m.—Report to the CMA House of Delegates by Mrs. Lyle F. Murphy, Auxiliary President, Room of the Dons, Mark Hopkins Hotel. Doctors' wives invited to attend.

SUNDAY, MARCH 28

9:00 a.m.—Executive Committee Breakfast Meeting, President's Suite, Fairmont Hotel.

2:30 p.m.—Pre-Convention Board Meeting, 20th Century Room, Fairmont Hotel.

7:00 p.m.—Presidents' Reception and Dinner-Dance honoring the President of the CMA, Dr. James C. Doyle, and President of the Woman's Auxiliary, Mrs. Lyle F. Murphy. Reception, 7:00 p.m., Gold Room; and Dinner-Dance, 8:00 p.m., Venetian Room, Fairmont Hotel.

MONDAY, MARCH 29

9:00 a.m.—Opening Session of House of Delegates, Gold Room, Fairmont Hotel.

11:30 a.m.—Recess for Lunch.

2:00 p.m.—Afternoon Session of House of Delegates, Gold Room, Fairmont Hotel.

TUESDAY, MARCH 30

9:00 a.m.—Final Session of House of Delegates, Gold Room, Fairmont Hotel.

12:45 p.m.—Presidents' Luncheon and Fashion Show honoring Mrs. Lyle F. Murphy, Mrs. George J. Bower, Past State Presidents, CMA Advisory Board and wives. Oriental Fashions by City of Shanghai, Gold Room, Fairmont Hotel.

WEDNESDAY, MARCH 31

8:00 a.m.—Post-Convention Board of Directors Meeting, Mrs. George J. Bower, President, presiding, Hunt Room, Fairmont Hotel.

10:00 a.m.—Orientation Meeting for: 1965-66 State Board Members, Incoming County and District Presidents and Presidents-Elect, and interested Auxiliary members. Mrs. George J. Bower presiding, Hunt Room, Fairmont Hotel.

OFFICERS AND DELEGATES

General Officers

James C. Doyle, Beverly Hills.....*President*
 Ralph C. Teall, Sacramento.....*President-Elect*
 William F. Quinn, Los Angeles.....*Speaker of House of Delegates*
 Joseph W. Telford, San Diego.. *Vice-Speaker of House of Delegates*
 Carl E. Anderson, Santa Rosa.....*Chairman of Council*
 Matthew N. Hosmer, San Francisco.....*Secretary*
 Dwight L. Wilbur, San Francisco.....*Editor*
 Howard Hassard.....*Executive Director*
 John Hunton.....*Executive Secretary*
 Peart, Baraty & Hassard.....*Legal Counsel*

House of Delegates

TOTAL DELEGATES (328) DELEGATES EX-OFFICIO (70)

James C. Doyle, San Francisco.....*President*
 Ralph C. Teall, Sacramento.....*President-Elect*
 William F. Quinn,
 Los Angeles.....*Speaker of House of Delegates*
 Joseph W. Telford,
 San Diego.....*Vice-Speaker of House of Delegates*
 Carl E. Anderson, Santa Rosa.....*Chairman of Council*
 Matthew N. Hosmer, San Francisco.....*Secretary*
 Dwight L. Wilbur, San Francisco.....*Editor*

COUNCILORS

James C. MacLaggan (1967).....*First District*
 Llewellyn E. Wilson (1967).....*Second District*
 Malcolm C. Todd (1965).....*Office No. 1, Third District*
 Elmer Gooel (1966).....*Office No. 2, Third District*
 Richard L. Taw (1967).....*Office No. 3, Third District*

Lewis T. Bullock (1965).....*Office No. 4, Third District*
 Joseph P. O'Connor (1966).....*Office No. 5, Third District*
 Franklin F. Ham (1967).....*Office No. 6, Third District*
 Wilbur G. Rogers (1965).....*Office No. 7, Third District*
 Joseph F. Maguire (1967).....*Fourth District*
 John F. Murray (1966).....*Fifth District*
 Richard S. Wilbur (1967).....*Office No. 1, Sixth District*
 Albert G. Miller (1965).....*Office No. 2, Sixth District*
 Malcolm S. M. Watts (1966).....*Office No. 1, Seventh District*
 Roberta Fenlon (1967).....*Office No. 2, Seventh District*
 Harold Kay (1966).....*Office No. 1, Eighth District*
 William F. Kaiser (1967).....*Office No. 2, Eighth District*
 Carl E. Anderson (1967).....*Ninth District*
 Dave F. Dozier (1965).....*Tenth District*
 Forest J. Grunigen (1967).....*Office No. 1, Eleventh District*
 Joseph P. Cosentino (1965).....*Office No. 2, Eleventh District*
 Edward B. Shaw (1965).....*Scientific Board Representative*

ELECTED DELEGATES (258)

<i>Delegates</i>	<i>Alternates</i>	<i>Delegates</i>	<i>Alternates</i>
ALAMEDA-CONTRA COSTA (18)		FRESNO (4)	
Ackerman, Frederick	Adams, Robert	Hopps, Walter W., Jr.	Moore, M. Phil
Anderson, Conrad E.	Barron, Gilbert	MacCracken, Frank E.	Pessis, Jack
Bassett, J. Brandon	Byers, Gilbert	Marsh, Dorothy J.	Pyzer, Lloyd E.
Black, Daniel W.	Donald, William G., Jr.	McGillis, Loron	Randolph, Homer
Blasdel, Edward K.	Duffy, Charles C.	Oddo, Nicholas V.	Robinson, Russell E.
Charvet, Leonard W.	Eisenberg, Harold J.	Parker, Robert W.	Sargent, Kenneth J.
Cronenwett, Paul	Etheredge, Samuel N.	Payne, David H.	Siegel, Herman F.
Goetsch, Carl	Harms, Herbert	Phillips, Jordan M.	Swift, Louise
Goggio, Alfred	Hart, Charles	Teale, Stephen P.	Willis, Charles W.
Holden, Herbert	Kerns, Claude	Yates, Paul D.	Wykle, John
Hoskins, H. Dean	Lyman, Richard W.		
Hudson, Charles B.	Maloney, Harold	HUMBOLDT-DEL NORTE (2)	
Keig, William	Newton, Paul	Argo, W. L.	Fulmer, H. F.
Kunkel, Peter	Purcell, Edward F.	Howard, Arthur F.	Gray, Clell C., Jr.
Richards, Dexter N., Jr.	Reedy, Richard N.	Kass, Robert	Snyder, L. J.
Truman, Stanley R.	Rihn, Richard J.	Smith, Robb	Whitten, Richard
Twigg, Edward	Ross, Joseph		
Wiesinger, Warren E.	Schreider, Jonas		
BUTTE-GLENN (2)		IMPERIAL (2)	
Elmendorf, Thomas	Ritter, Dale W.	Jaquith, George	Ajalat, M. P.
Murphy, Franklin L.	Sears, A. R. M.	Schoensee, Burke E.	Worthman, Robert H.
FORTY FIRST (20)		INYO-MONO (2)	
Bailey, K. Grosvenor	Axelrod, Irving	Hartwig, W. Ray	
Bean, Joseph P.	Barden, George	Knecht, Evan	
Carroll, Vincent P.	Bennett, D. Clinton		
Christensen, Joseph R.	Dukes, Robert	KERN (4)	
Cowell, H. Stanley	Fawns, Lynn W.	Burnett, Ralph W.	Clark, M. Marlin
Feinberg, Munish	Herzen, Alexander	Day, Robert L.	Ellis, John F.
Feist, John P.	Houghtaling, Edward B.	Strongin, Seymour	Friend, James R., Jr.
Frantzich, Otto A.	Johnson, Gilman C.	Vaughan, J. E.	Osell, Levin N.
Futterman, Milton S.	Kammerman, Richard F.		
Gordon, Glenn F.	Kaupke, John M.		

<i>Delegates</i>	<i>Alternates</i>	<i>Delegates</i>	<i>Alternates</i>
KINGS (2) Brookshier, R. W. Kerr, Edwin E.	Christensen, L. F. Dittes, William	MONTEREY (3) Clark, Howard E. Englehorn, T. D. Fassett, James R.	Hull, Osman H. Klinefelter, R. P. Turner, Joseph E.
LASSEN-PLUMAS-MODOC-SIERRA (2) Bross, Willard S., Jr. Quinn, William J.	Batson, Wilbur C.	NAPA (2) Brignoli, Walter H. Rose, Edgar Kash	Ashley, Robert C. Ledwich, Thomas
LOS ANGELES (76) Asher, Leonard M. Axelrod, Bernard Bailey, Wilbur Baker, Jack W. Barker, Donald E. Barry, Donald J. Beason, Ralph D. Bowen, Gordon T. Boyle, Joseph F. Briney, Allan K. Buehler, George S. Bullis, John A. Bullock, Lewis T. Burrows, Herbert L. Cherry, Ian S. Condit, Leonard O. Conti, James G. Cook, Eugene Lee Crane, Jay J. Crum, Jean F. Doehring, Paul C. Donahue, D. W. Dummer, Jerome Earl, Donald H. Eder, David Fitch, Donald R. Furer, Stanford A. Goldman, Theodore H. Gondek, Frank R. Goodwin, William E. Gooel, Elmer F. Halasey, Thomas Hamel, Neal C. Haskell, M. M. Heiser, Saul Hill, Harry E. Isaacs, Julien H. Kempf, Paul Ruben, Jr. Kirchner, Arthur A. Kuntz, George S. Kuris, David B. Lask, Salvatore A. Lau, Michael W. Longmire, Wm. P., Jr. Lynn, Jack M. Macdonald, Ian MacInnis, Douglas N. Mauer, Edgar F. May, Lewis H. V. McCleery, Walter S. Miller, Richard D. Mooney, Herbert S. Morgan, Henry G. Morton, Daniel G. Murrieta, A. J., Jr. Neibling, Harold A. Neuenschwander, Robert S. Paxton, Frank F. Polito, S. Robert Pollack, John V. Quinn, William F. Sampson, J. Philip Schimmel, Irwin Shearer, Shirley K. Smart, Reginald H. Smith, Eldon E. Sommer, Melvin L. Stout, Carlyle F. Stragnell, Robert Taw, Richard L. Todd, Malcolm C. Voigt, Philip F. Watson, Robert L., Jr. Wilkins, Harold E. Woodruff, John H. Woolington, Sam S.	Allin, John G. Anderson, James E. Andrews, Richard E. Attyah, Albert M. Barber, Clifford A. Barnett, Ernest R. Beattie, Arthur S. Benson, Seymour Bloom, A. Ralph Bouch, Gene R. Brennan, John C. Burke, Donald E. Carlson, Carroll C. Compton, Russell F. Cooper, Boyd Cope, Jerome A. Crowe, Harold E. Dorn, Robert M. Edwardh, Orville H. Elshire, H. Donel Frank, William P. Freidin, Morris Golden, Robert F. Golenternek, Joe Graham, Garth K. Hanchett, Richard B. Hansen, Martin E. Harnagel, Edward E. Herson, Ronald E. Hoffman, Peter L. Horton, James W. Hull, Earl T., Jr. Jacobs, Laurence L. Jennings, Elmer R. Kiddie, Thomas Kramer, Norbert E. Levy, Charles C. Lichtenstein, Irving L. Mailman, Richard H. Mayne, John C. Mavtum, W. James McCandless, Harrison McLaughlin, Henry M. Medler, David C. Mietus, A. C. Milliken, Ralph M. Morgan, Frank M. Mueller, Robert L. Murasky, Stanley J. Murray, Gregory C. Olsen, Jack G. Palmer, Robert H. Peeke, George O. Platz, Edward H. Pocock, Dean S. Rogers, Frank A. Rolland, Ward M. Rothenberg, Sanford F. Salkin, Murray R. Schade, Frank F. Smith, Seth W. Smith, Thayer A. Snell, Marvin V. Thom, John G. Thompson, Wm. Benbow, Jr. Trumbull, William E. Turrill, Fred L. Ulery, Richard M. Weber, Robert A. Welch, Jack H. Westerbeck, Charles W. Whipple, Winston F. Wong, Thomas A. Wood, Robert C. Wunderlich, E. E.	ORANGE (10) Altman, Richard F. Ball, Dexter T. Galbraith, Harold F. Hanigan, Thomas E. Hawkins, G. William Paul, Carl J. Pettis, Emmett M. Plumb, Hugh J., Jr. Price, J. B. Wickett, William H., Jr.	Anderson, William T. Bode, Arnold G. H. Eastman, Henry V. Geddes, David K. Graham, Ralph E. Jett, Jim Lowe, Waynard W. McFarland, Philip H. Mosier, Laurance A. Thomassen, Elmer H.
		PLACER-NEVADA (2) Dubin, Nathan Joye, K. M.	Johnson, F. H. Rossitto, T. J.
		RIVERSIDE (4) Abbott, Donald Fitzmorris, Andrew Peterson, John R. Stone, H. H.	Ivanoff, John Kinney, William Sheehy, John J. Stone, Veon M.
		SACRAMENTO (6) Berg, John A. Berman, A. E. Grayson, Charles E. Horn, Carl E. Pope, Glenn A. Yant, James H.	Boyers, L. Morgan Cook, Orrin S. Farley, James O. Hause, Donald P. Long, John B. Martin, James W.
		SAN BENITO (2)	
		SAN BERNARDINO (5) Halburg, Clarence T. Melone, Frank Miano, Ben D. A. Sprague, Charles P. Varden, Arthur	Hendrickson, Merlin A. Hill, Harold M. Krikes, Nicholas P. Sterling, Allen F. Wake, Donald K.
		SAN DIEGO (12) Carpenter, Walter F. Fairchild, L. H. Hippen, Robert L. Hokr, William K. Isenhour, Roger C. King, Ralph M. Levy, Edward I. Robinson, Frank H. Rumsey, John M. Tancredi, Chester Telford, Joseph W. Youel, Milo A.	Brumbaugh, Simon C., Jr. Kirtland, Howard B., Jr. McCausland, John D. Messenger, Harold M. Moore, Stanley A. Pace, J. Blair Parkinson, Gaylord Peabody, Homer D., Jr. Peck, J. Haddon A., Jr. Peck, Sam Plumb, Robert T. Wells, John J.
		SAN FRANCISCO (19) Bender, William T. Combs, Robert C. Fullenlove, Tom M. Gallagher, Donald M. Gibbons, Henry, III Herrod, Chester E. Herzog, George K., Jr. Hopp, Eugene S. Mettier, Stacy R., Jr. O'Gara, Louis A. Rixford, Emmet L. Robinson, Saul J. Saunders, John B. de C. M. Schaupp, John B. Sirbu, Abraham B. Wayburn, Edgar Weyrauch, Helen B. Williams, A. Justin Young, Bradford	Auerback, Alfred Baer, Charlotte C. Bryan, John R. Burnham, DeWitt K. Clark, Albert G. Cook, Robert E. Erskine, John M. Feldman, Sanford E. Fleming, Ruth Fraser, Alexander Hurwitz, Samuel Jew, Jack Musser, Don C. Newsom, William A. Pillsbury, Philip L. Reinhardt, William O. Salomon, Maurice S. Webb, Eugene M. Webb, Gilbert A.
MARIN (3) Ablin, Arthur R. Mills, Robert L. West, Robert	Lee, John R. Stubblebine, James M. Weden, Elmer, Jr.	SAN JOAQUIN (3) Benn, James J. Harrington, Donald C. McNally, John	Nickols, Bruce Salter, Robert Williams, George
MENDOCINO-LAKE (2) Roberson, B. B. Smalley, Robert B.	Waring, William Wilson, L. B.	SAN LUIS OBISPO (2) Kirk, Stanley Middleton, Joseph G.	Chambers, James Greenman, Robert
MERCED (2) Jackson, Edward McDowell, B. E.	Corbett, Thomas Holm, Richard		

<i>Delegates</i>	<i>Alternates</i>
SAN MATEO (7)	
Brown, Henry A. Fox, Norman C. Hart, Ward L. Hills, Oscar W. Lindsey, Howard W. Novak, Frank J. Saidy, John T.	Aycinena, Juan Healy, Francis A. Kohn, Martin M. Larsen, William G. Richanbach, Henry S. Rossiter, Stanford B. Storli, Edgar A.
SANTA BARBARA (4)	
Dalton, James McNiece, Kenneth St. John, James Zicmba, Joseph	Blanchard, John Domz, Casimir Helges, L. E. Kinsell, C. Seybert
SANTA CLARA (11)	
Besson, Gerald Boice, Clyde Davis, Burt L. Foster, Thomas N. Fox, Leon P. Giansiracusa, Frank Liston, Edward Mitchell, Sidney Scarborough, C. Gerald Silver, Emmanuel Skillicorn, Stanley A.	Clark, William Cramer, Harold George, John W. Houck, George Hull, David L. Kaufman, S. Fred Neubauer, Ivan O'Neill, Robert Peck, Clemmer Ramsay, George Rowles, Donald
SANTA CRUZ (2)	
DePuy, J. L. Rousseau, Robert	Mills, Richard Standage, Harlow
SHASTA-TRINITY (2)	
Miller, Charles D. Polka, Michael G.	Nutley, Eugene A. Ryan, Edward D.
SISKIYOU (2)	
Macfarlane, Robert Meamber, Donald L.	Chappell, Harry Martin, F. W.
SOLANO (2)	
Garrett, Robert L. Olson, William J.	Gullock, Alvin H. Schmutz, Melvin A.
SONOMA (3)	
Barnett, Richard C. Sharrocks, Horace F. Zieber, R. L.	Clary, David T. Craven, Wayne Johnston, Richard T.
STANISLAUS (3)	
Hatch, Francis N. New, David J. Purvis, Robert	Nelson, William R. Pyles, Gordon Woolley, J. S.

<i>Delegates</i>	<i>Alternates</i>
TEHAMA (2)	
Ingle, Gerald Wolfe, Lynn E.	Jourdan, Harve Wood, O. T.
TULARE (2)	
Goettle, James W. Lavers, George D.	Brauner, E. P. Williams, John C.
VENTURA (3)	
Huff, W. Cloyce Moore, J. W. Rulfo, H. J.	Hair, C. M. Maguire, Joseph F. Nelson, James H.
YOLO (2)	
Sobeck, Frederick J. Wilson, B. Kent	Ward, Cameron S.
YUBA-SUTTER-COLUSA (2)	
Boyer, Warren Wright, Bayard A.	Cusick, George Wallace, Robert N.
EX-OFFICIO SCIENTIFIC BOARD (18)	
Belford, William W. Bettman, Jerome W. Biskind, Gerson R. Blanchard, Leland B. Dillon, John B. Farber, Eugene M. Franzi, A. J. Goerke, L. S. Kaufman, Joseph J. Keeney, Edmund L. Knox, Stuart C. Neufeld, Alonzo J. Petit, Donald W. Richards, Victor Rubin, David Russell, Keith P. Samson, Paul C. Wood, David A.	Reynolds, Telfer B. Stein, Justin J. Zaik, Edward J.
EX-OFFICIO PAST PRESIDENTS (23)	
Ewer, Edward N..... 1925	Green, John W..... 1953
Harris, Junius B..... 1931	Morrison, Arlo A..... 1954
Peers, Robert A..... 1935	Shipman, Sidney J..... 1955
Wilson, Harry H..... 1940	Charnock, Donald A... 1956
Molony, Wm. R., Sr.... 1942	MacDonald, Frank A. 1957
Schaupp, Karl L., Sr.. 1943	West, Francis E..... 1958
Goin, Lowell S..... 1944	Reynolds, T. Eric..... 1959
Cline, John W..... 1947	Foster, Paul D..... 1960
Askey, E. Vincent..... 1948	Bostick, Warren L..... 1961
Kneeshaw, R. Stanley 1949	Wheeler, Omer W..... 1962
Cass, Donald..... 1950	Sherman, Samuel R..... 1963
MacLean, H. Gordon.. 1951	
EX-OFFICIO HONORARY PAST PRESIDENT (1)	
	Murray, Dwight H.

House of Delegates • 1965 Annual Session

AGENDA

Room of the Dons and Peacock Court • Mark Hopkins Hotel

Speaker.....William F. Quinn, Los Angeles
Vice-Speaker.....Joseph W. Telford, San Diego
Secretary.....Matthew N. Hosmer, San Francisco

FIRST MEETING, Saturday, March 27. at 7:00 p.m.

ORDER OF BUSINESS

1. Call to order.
2. Report of Committee on Credentials, and Organization of the House of Delegates.
3. Roll call.
4. Announcement and approval of Reference Committees.
 - (a) Committee on Credentials. (Delegates must register with the Committee.)
 - (b) Reference Committee on the Reports of Officers, the Council, the Commissions and Standing and Special Committees. (Reference Committee No. 1)
 - (c) Reference Committee on Finance, to review the reports of the Secretary and the Executive Secretary and to study and make recommendations to the House of Delegates on the budget submitted by the Council and the amount of dues for the ensuing year. (Reference Committee No. 2.)
 - (d) Reference Committee on Resolutions and New and Miscellaneous Business. (Reference Committee No. 3.)
 - (e) Reference Committee (No. 3A) on Resolutions and New and Miscellaneous Business.
 - (f) Reference Committee on Amendments to the Constitution and By-Laws. (Reference Committee No. 4.)
 - (g) Reference Committee on CPS Business.
5. Address by President of the Woman's Auxiliary to the CMA—Mrs. Lyle F. Murphy.
6. Address by President—Presentation of 50-Year Awards.
7. Miscellaneous announcements by the Speaker. (Stenographic service to secure copies of resolutions, etc.)
8. Report of the President—James C. Doyle.
9. Report of the President-elect—Ralph C. Teall.
10. Report of the Speaker of the House of Delegates—William F. Quinn.
11. Report of the Vice-Speaker of the House of Delegates—Joseph W. Telford.
12. Report of the Trustees of the California Medical Association—James C. Doyle.
13. Report of Physicians' Benevolence Fund, Inc.—James C. Doyle.
14. Report of the Secretary—Matthew N. Hosmer.
15. Report of the Editor—Dwight L. Wilbur.
16. Report of the Executive Secretary—John Hunton.
17. Report of Legal Counsel—Peart, Baraty and Hassard.
18. Report of the Committee for Emergency Action—James C. Doyle.
19. Report of the Council—Carl E. Anderson, Chairman.
20. Report of CPS Board of Trustees—Paul I. Hoagland, Chairman, Board of Trustees.
21. Reports of ad hoc committees of 1964 House of Delegates:
 - (a) State fee schedules.
 - (b) Size of House of Delegates.
 - (c) Vote on Council for chairman of Scientific Board.
22. Reports of Commissions.
 - (a) Commission on Community Health Services—Harold Kay, Oakland.
 - (b) Commission on Medical Services—John F. Murray, Fresno.

- (e) Commission on Professional Welfare—George K. Herzog, San Francisco.
 - (d) Commission on Public Agencies—James C. MacLaggan, San Diego.
 - (e) Judicial Commission—Donald A. Charnock, Los Angeles.
 - (f) Scientific Board—Edward B. Shaw, San Francisco.
23. Reports of Other Committees.
- (a) Bureau of Research and Planning—Samuel W. Sherman, San Francisco.
 - (b) Bureau on Communications—Warren L. Bostick, Los Angeles.
 - (e) Committee on Legislation—Dan O. Kilroy, Sacramento.
 - (d) Finance Committee—John F. Murray, Fresno.
 - (e) Medical Executives Conference—Everett Bannister, Orange.
 - (f) Delegates to the AMA—J. Lafe Ludwig, Los Angeles.
24. Old and Unfinished Business.
25. New Business.

SATURDAY EVENING—MARCH 27

(Immediately following the House of Delegates Meeting)

AMPAC REPORTS

(CALIFORNIA VOLUNTEERS FOR POLITICAL ACTION—CALPAC)

THE POLITICAL PICTURE — MEDICINE'S FUTURE

Malcolm C. Todd, M.D., Chairman

ALL CMA MEMBERS AND WIVES ARE INVITED TO ATTEND

SECOND MEETING, Tuesday, March 30, at 4:00 p.m.

(To be recessed and reconvened at 9:00 a.m. Wednesday, March 31)

ORDER OF BUSINESS

1. Call to order.
2. Supplemental report of Credentials Committee.
3. Roll call.
4. Secretary's announcement of Council's selection of time and place for the 1966 annual session.
5. Election of officers:
 - (a) President-elect.
 - (b) Speaker.
 - (c) Vice-Speaker.
 - (d) Councilors (three-year terms).
 - (1) Second District—New-office No. 2 (term expires 1968).
Second District—Imperial, Inyo, Mono, Orange, Riverside and San Bernardino Counties.
 - (2) Third District—Office No. 1—Malcolm C. Todd, Long Beach (term expiring).
 - (3) Third District—Office No. 4—Lewis T. Bullock, Los Angeles (term expiring).
 - (4) Third District—Office No. 7—Wilbur G. Rogers, Glendale (term expiring).
Third District—Los Angeles County.
 - (5) Sixth District—Office No. 2—Albert G. Miller, San Mateo (term expiring).
Sixth District—Monterey, San Benito, San Mateo, Santa Clara and Santa Cruz Counties.
 - (6) Tenth District—Dave F. Dozier (term expiring).
Tenth District—Alpine, Amador, Butte, Colusa, El Dorado, Glenn, Lassen, Modoc, Nevada, Placer, Plumas, Sacramento, Shasta, Sierra, Siskiyou, Sutter, Tehama, Trinity, Yolo and Yuba Counties.
 - (7) Eleventh District—Office No. 2—Joseph P. Cosentino, Sacramento (term expiring).
Eleventh District—Statewide.

- (e) Delegates to the American Medical Association: Delegates and Alternates to the American Medical Association are elected for terms of two calendar years. The Delegates and Alternates to be elected at this meeting will serve for two calendar years starting January 1, 1966, except as otherwise noted.

INCUMBENTS:

- (1) Samuel R. Sherman, San Francisco (term expiring).
- (2) Henry Gibbons III, San Francisco (term expiring).
- (3) John M. Rumsey, San Diego (term expiring).
- (4) Eugene F. Hoffman, Los Angeles (term expiring).
- (5) Warren L. Bostick, Los Angeles (term expiring).
- (6) J. B. Price, Santa Ana (term expiring).
- (7) Ralph C. Teall, Sacramento (term expiring).
- (8) James C. Doyle, Beverly Hills (term expiring).
- (9) Wilbur G. Rogers, Glendale (term expiring).
- (10) Charles B. Hudson, Oakland (term expiring).
- (11) New office—term of calendar 1965.
- (12) New office—two-year term starting January 1, 1966.

- (f) Alternates to the American Medical Association: Terms of all incumbents expiring. All offices for two-year terms starting January 1, 1966, except as otherwise noted.

INCUMBENTS:

- (1) Albert G. Miller, San Mateo (alternate to Samuel R. Sherman).
- (2) Robert Combs, San Francisco (alternate to Henry Gibbons III).
- (3) Francis E. West, San Diego (alternate to John M. Rumsey).
- (4) Edward H. Crane, Jr., Inglewood (alternate to Eugene F. Hoffman).
- (5) Walter H. Brignoli, St. Helena (alternate to Warren L. Bostick).
- (6) Donald C. Dodds, Oakland (alternate to J. B. Price).
- (7) Rohb Smith, Orange Cove (alternate to Ralph C. Teall).
- (8) Homer C. Pheasant, Los Angeles (alternate to James C. Doyle).

- (9) Carl M. Hadley, San Bernardino (alternate to Wilbur G. Rogers).

- (10) Robert L. Watson, Jr., Los Angeles (alternate to Charles B. Hudson).

- (11) New office—calendar year 1965—alternate to elected delegate.

- (12) New office—two-year term starting January 1, 1966—alternate to elected delegate.

6. Election of CPS Trustees (three-year terms):
Report of CMA Council as Nominating Committee.
Incumbents, terms expiring: .
Warren L. Bostick, Los Angeles.
Paul I. Hoagland, Pasadena (Ineligible for reelection).
Mr. Philip S. Magruder, Pasadena.
Angus C. McDonald, Huntington Park (Ineligible for reelection).
John E. Vaughan, Bakersfield (Ineligible for reelection).

7. Announcement by Secretary.
Council's nominations of members of Commissions and Committees (for approval by the House of Delegates).

8. Reports of Reference Committees:
 - (a) Reports of Reference Committee No. 1 on Reports of Officers, the Council, Commissions and Standing and Special Committees.
 - (b) Report of Reference Committee No. 2 on Reports of the Secretary, the Executive Secretary, and the budget and dues.
 - (c) Report of Reference Committee No. 3 on Resolutions and New and Miscellaneous Business.
 - (d) Report of Reference Committee No. 3A on Resolutions and New and Miscellaneous Business.
 - (e) Report of Reference Committee No. 4 on Amendments to the Constitution and By-Laws.
 - (f) Report of Reference Committee on CPS Business.

9. Unfinished Business.

10. New Business.

11. Presentation of Officers:

President.
President-elect.
Speaker.
Vice-Speaker.

12. Presentation of certificate to retiring president James C. Doyle.

13. Approval of minutes. (Committee to edit.)

14. Adjournment.

WILLIAM F. QUINN, *Speaker*
MATTHEW N. HOSMER, *Secretary*

1964 CONSTITUTIONAL AMENDMENTS FOR ACTION IN 1965

Three amendments to the Constitution were introduced at the final meeting of the 1964 House of Delegates. These are required to lie upon the table until the next regular meeting of the House of Delegates; meanwhile, they must be published in at

least two issues of CALIFORNIA MEDICINE. They will be considered by the appropriate reference committee of the House of Delegates and then will be reported to the members of the House in the 1965 Session.

CONSTITUTIONAL AMENDMENT NO. 1-64

Subject: Composition of Council—Article III,
Part B, Section 9(b)

Introduced by: Carl E. Anderson

Representing: The Council

Resolved: That Article III, Part B, Section 9, paragraph (b) be amended by adding the words shown in italics so that the paragraph shall read as follows:

(b) The president, president-elect, *immediate past president*, speaker and vice-speaker.

‘ ‘ ‘

CONSTITUTIONAL AMENDMENT NO. 2-64

Subject: Composition of Council—Article III,
Part B, Section 9(a)

Introduced by: Chester Herrod, M.D.

Representing: San Francisco

WHEREAS, the present size of the Council is consistent with efficiency, and

WHEREAS, an increase in size may diminish the efficiency of the Council, and

WHEREAS, the number of doctors in California will inevitably increase and thereby increase the size of the Council, and

WHEREAS, a change in the numerical basis for councilor selection is the simplest method of retaining the present size of the Council; now, therefore be it

Resolved: That Article III, Part B, Section 9(a), be amended to read: (New language in italics)

“Each councilor *or subcouncilor* district, as specified in this Constitution, shall be entitled to one councilor for each *sixteen hundred (1600)* active members, or *minor* fraction thereof, according to its membership as of the first day of September of the preceding year; provided that each councilor *or subcouncilor* district shall be entitled to a minimum of one councilor.”

‘ ‘ ‘

CONSTITUTIONAL AMENDMENT NO. 3-64

Subject: Councilor Districts—Article III,
Part B, Section 10

Introduced by: Chester Herrod, M.D.

Representing: San Francisco

WHEREAS, the increasing number of doctors in some counties in California has altered the equilibrium which previously existed in councilor districts, and

WHEREAS, since crowded highways makes attendance from a distance at councilor district caucuses increasingly difficult, and

WHEREAS, the need to redefine councilor districts to recognize population changes and for convenience of delegates is apparent; now, therefore be it

Resolved: That Article III, Part B, Section 10, of the Constitution be amended to read as follows: (New language in italics)

“There are *fourteen (14)* districts as follows:

“District Number One, comprising San Diego County.

“District Number Two, comprising *Orange* County.

“District Number Three, comprising the County of Los Angeles.

“District Number Four, comprising *Imperial, Riverside, San Bernardino, Inyo and Mono* Counties.

“District Number Five, comprising *Ventura and Santa Barbara* Counties.

“District Number Six, comprising *Kern, Kings, Tulare, Fresno, Madera, Merced, Stanislaus, Mariposa, Calaveras, Tuolumne and San Joaquin* Counties.

“District Number Seven, comprising *San Luis Obispo, San Benito, Monterey and Santa Cruz* counties.

“District Number Eight, comprising *Santa Clara and San Mateo* counties.

“District Number Nine, comprising *the County of San Francisco*.

“District Number Ten, comprising *Alameda and Contra Costa* Counties.

“District Number Eleven, comprising *Marin, Solano, Napa, Sonoma, Lake, Mendocino, Humboldt and Del Norte* counties.

“District Number Twelve, comprising *the County of Sacramento*.

“District Number Thirteen, comprising *Amador, Alpine, El Dorado, Placer, Nevada, Sierra, Yuba, Colusa, Sutter, Yolo, Glenn, Butte, Tehama, Trinity, Shasta, Lassen, Plumas, Modoc and Siskiyou* counties.

“District *Number Fourteen*, consisting of any society which is not limited as to geographical area, or the area of which overlaps the area covered by any one or more existing component societies; such society and its members shall not be considered to be members of any other councilor district.”

ANNUAL REPORTS FOR 1964

FOREWORD

PRESENTED BELOW are the official reports of the governing bodies of the California Medical Association. These cover, for the most part, the calendar year 1964 and may be supplemented by additional reports to be made before the House of Delegates to cover activities occurring in the early part of 1965.

These reports will be reproduced in the *Annual Reports Bulletin* which will be distributed to all members of the House of Delegates in advance of the 1965 meeting of that body. This bulletin will also contain a number of reports from commissions, bureaus and committees of the Association, which as a body will portray the entire picture of CMA activities during the year. Copies of this bulletin will be available to individual members requesting them following the Annual Session.

This procedure has been adopted as a means of informing the entire membership of the overall activities of the Association, of providing members of the House of Delegates with detailed reports on a number of areas of interest and of allowing the many commissions, bureaus and committees to bring their reports more up-to-date for the consideration of the House of Delegates.

REPORT OF

The Council

To the President and the House of Delegates:

The Council of the California Medical Association has the dual responsibility of managing the daily affairs of the organization and determining policies to be followed between the annual meetings of the House of Delegates. The variety and volume of business coming before the Council from these activities requires a tremendous amount of planning and organization, as well as relatively frequent meetings.

The Council has for the past several years followed a program of ten meetings annually. This program has been maintained during calendar year 1964. Three meetings have been scheduled for the early 1965 months preceding the Annual Session.

Minutes of all Council meetings are published in CALIFORNIA MEDICINE in the earliest issue available following each meeting. Many details of Council considerations and actions are contained in these reports. Additional details are also available from the Association's office and staff, so that no member need feel that any transactions are taking place in a star chamber or without full consideration of the various factors surrounding any situation requiring policy determination or action.

The composition of the Council is geographical, numerically uniform and representative of a cross-section of all segments of California's physicians.

Council meetings are arranged so that reports may be made by all standing commissions and committees and by special and ad hoc committees appointed for specific purposes. Representatives of various allied interests may also attend and participate and their thoughts, ideas and suggestions may be brought forth, discussed and considered. The "gag rule" does not apply in Council meetings. Ample opportunity is afforded all members and guests to speak freely and in detail. Officers of County Medical Societies are invited to attend whenever practical. County Society Executive Secretaries attend regularly.

Attendance at Council meetings is usually 100 per cent, with an absence noted occasionally for good cause. During 1964 the Council was saddened by the illness of Councilor Joseph F. Maguire of Ventura, who suffered a heart attack following the October 31 meeting. It is the Council's hope that he may recover completely and reassume his place on the Council as an active, interested and capable member.

This report will not attempt to go into detail on various Council actions but will discuss briefly some of the major areas of interest and activity which have engaged the Council in the past year. Additional details are available on inspection of the published minutes or by inquiry to members of the Council or the staff. Among the major areas of interest last year were the following:

1. *Medical Care of the Aged.* This subject has again been uppermost in the minds of Council members, as it has been for several years past. The failure of the King-Anderson proposal in the Congress stopped all federal activity along this line for the final few months of 1964 but the November

elections saw many new members of Congress elected on platforms which would indicate their willingness to approve legislation to provide medical care for the aged under the Social Security umbrella.

The Council voted, in December, to establish an action program on a positive plane, to (1) identify the medical profession with the realization of the needs of the elderly in securing health care, (2) strengthen, and expand the implementation of legislation already on the statute books to provide such care, and (3) urge the use of the voluntary prepaid health insurance mechanisms in providing care for this group. At the close of 1964 this program stands approved and ready for implementation. The staff, working with the officers and appropriate committees of the Association, will carry out this project; the enthusiastic response from many quarters indicates that this active attitude will warrant a fine response from public and medical circles alike.

2. *Keogh Retirement Program.* Late in 1963 the Association embarked on a retirement program for members based on the Keogh Law adopted by the Congress. As expected, the program did not gain a large number of participants at the outset. Also as expected, additional participants have entered the program since its original offering. The plan utilizes both annuity insurance and a choice of "growth" investment trust funds. It is anticipated that in coming years this program will continue to grow in size and to present to the members of the Association a useful and workable plan of setting aside retirement income under the shelter of the tax laws. The Council has every confidence that this program offers a real service to members of the Association and will continue to grow in value to the membership as time goes on.

3. *Scientific Board.* The Council has been pleased to note the progress of the Scientific Board, which has been functioning fully for just about one year. Reports on the board's activities are brought to the Council by Doctor Edward B. Shaw, selected as Board representative on the Council. He has not only kept the Council in touch with the scientific activities under way but has established himself as a most capable and knowledgeable scientist in many other matters in which the Council must take an interest. Great progress is evident in the framing of Annual Session scientific programs around a central theme and in the participation of numerous specialty organizations in the Association's scientific programs. The program for the 1965 Annual Session, with Virology as the theme, appears to offer an outstanding group of participants prepared to furnish an overall atmosphere which will attract many members who heretofore have preferred attending specialty meetings.

In addition to planning scientific activities the Scientific Board has held itself ready to consider and make recommendations on a number of questions which come before the Council. Its help in this regard has been invaluable and represents a development which promises to be of continuing assistance to the entire Association. In the Scientific Board the Council has access to a group of members oriented in all aspects of scientific and practical medicine, whose talents extend beyond those of the average member and whose opinions are of great value.

4. *Medical Education.* The Council continues its interest in medical education, both undergraduate and continuing. In the field of undergraduate medical education the Council has consistently approved a budget position whereby \$10 of the annual dues of each active CMA member is earmarked for a contribution to the American Medical Association-Education and Research Foundation. Under this formula, a 1964 contribution to AMA-ERF in the amount of

\$198,705 was made at the close of the year in a presentation before the AMA House of Delegates.

The Council also continues to invite the deans of the medical schools in the state to attend Council meetings and to make such reports, suggestions and proposals as they wish. It is interesting to note that while all medical school deans do not regularly attend Council meetings they do appear when their own schedules permit and that a friendly atmosphere of "town and gown" prevails. During 1964 the Council was happy to welcome Doctor Warren L. Bostick, former CMA Councilor and President, to the ranks of the deans as dean of the California College of Medicine. Doctor Joseph Stokes III, newly appointed dean of the University of California Medical School at San Diego, has also been invited to participate in Council sessions and Doctor Roger Egeberg, new dean at University of Southern California, has attended during the year.

In the area of continuing medical education the Association has continued its two-day postgraduate institutes and its circuit courses in non-urban communities. The Scientific Board has also inaugurated a program of correlating all postgraduate medical education activities in the interest of eliminating duplications and strengthening those programs which appear to be most helpful to the practicing physician. Toward the end of 1964 two day-long conferences of medical educators were held, one in Los Angeles and one in San Francisco. Both drew record audiences and enthusiastic participation from highly-placed medical educators who value the Association's efforts to coordinate postgraduate training programs. No immediate benefits will be seen from this effort at coordination but it is apparent that within a few years a great deal of good will result, including the conservation of effort and funds of sponsoring agencies whose programs might otherwise be duplicated.

5. *Liaison With Other Organizations.* Throughout the year the Council has maintained liaison with other organizations and with departments of the state government which furnish medical services to specified segments of the population. Among other organizations which are invited to send representatives regularly to Council meetings are California Physicians' Service and the California Hospital Association. In addition, liaison is established with a number of voluntary health agencies, with other professional organizations and with civic bodies through contacts maintained by members of the Council and by staff members. These contacts permit the interchange of ideas, keep the Association abreast of developments in fields outside our own immediate interest and serve as a stimulus to friendship and encouragement when items of broad interest come before the Council.

Among the departments of state government which are invited to all Council meetings are the departments of Public Health, Social Welfare, Finance, Mental Hygiene, Rehabilitation and Health & Welfare agency. In addition, the Board of Medical Examiners is represented at these meetings and various executive officers of the state have honored the Council with their presence on occasion. These contacts help the Council to keep in touch with a variety of state programs and serve to generate a personal relationship which is most helpful when Association policies are to be expressed to the administrative branch of the state government.

6. *Actions of 1964 House of Delegates.* During the year the Council supervised the implementation of all resolutions adopted by the 1964 House of Delegates. Copies of all resolutions adopted and a report on the actions taken on each will be mailed in advance of the 1965 House of Delegates to all members of the coming House. This will enable

all Delegates and Alternates to keep a record of the actions taken by the Council and the commissions and committees to which the various subjects were referred. The Council has suggested to all commissions and committees that the author of each resolution should be contacted before action is taken, so that it may be clear to the commission or committee that the intent of the author is being considered. This process is to assure the authors of business brought to the House of Delegates that their basic purposes are being given consideration following adoption of their resolutions.

7. *Legislation.* Since 1964 was not a year when the state Legislature acted upon general business there was not a volume of specific legislation to be considered. Rather, the emphasis during the year was on the activities of a number of legislative interim committees to which business of interest to the Association had been assigned. Where representation by the Association was deemed advisable the Council has named the representatives to appear and has set the policies to be followed. A number of such appearances have been made during the year and reports made to the Council by those appearing.

In 1965 a general legislative session will be held and the Association will be represented in Sacramento, as in the past, by the Public Health League of California. In December the California Medical Association and the Public Health League jointly established an office in Sacramento, where members and representatives of the professional organizations are welcome at all times. This office will serve on a year-around basis and will assist in maintaining contact with the many state officials, legislative committees and other entities with which the Association has to deal throughout the year.

At the close of 1964 it is too early to prognose the legislation which will come before the Legislature following its convention on January 4. It is safe to predict, however, that many measures affecting the public health and the practice of medicine will be included in the total offering and that all efforts must be made to keep in touch with all such bills and to make sure that the Association's point of view is made known to the members of the Legislature and their committees. It is fortunate that the quality of medical representation in Sacramento is so high, which assures the Association of proper and knowledgeable advocates in the legislative field. Reports on legislative activities will be made to the Council regularly and will be conveyed to all members, through the regular communications media, including *Newsletter*, *CALIFORNIA MEDICINE* and the publications of the Public Health League of California. Many county society bulletins also publish digests of legislative proceedings, so that their members may be kept advised.

8. *Commissions and Committees.* All commissions and committees render their own reports to the House of Delegates and these are recommended reading in this issue. All report to the Council regularly during the year and these reports are digested in the published Council minutes. It is obvious from these reports that the commissions established in the Association's structure are kept extremely busy and perform a valuable service to the Council and the entire Association in following through on their respective assignments.

At the close of 1964 the Council has under consideration some changes in the commission-committee structure, under which several committees now assigned to existing commissions would be grouped together under a newly formed commission and the names of some commissions would be changed to represent more closely the actual field of responsibility each occupies. Should the Council approve

these changes, suitable Bylaw amendments will be introduced into the House of Delegates.

Since its introduction some 13 years ago the commission and committee structure of CMA activities has served extremely well. It is so organized that it is flexible and subject to change by Bylaw amendments from year to year. At the same time it constitutes a body of standing committees to which various items may be referred for study, consideration and recommendation. It is interesting to note that several other state medical associations have followed this pattern of organization. The presence of individual committees whose activities are reviewed by a parent commission and then submitted to the Council creates a sound foundation for serious study and positive action. It likewise eliminates the need for frequently appointing ad hoc or special committees to handle one specific item.

9. *Bureau on Communications.* A problem confronting the Council for several years past has apparently been solved during the year with the reorganization of the Bureau on Communications. This valuable section of the Association's activities had been somewhat disorganized following the reassignment of its former director to another area of work and the appointment of an acting director who could devote only a small portion of his time to this endeavor. During 1964 a new director was appointed from the staff and has been given every cooperation in realigning the assignments and the personnel of the department. Competent professional consultants have been retained and a staff of qualified personnel employed. At this time the bureau appears to be established on a basis where it can handle the varied activities thrust upon it by the House of Delegates, the Council, the officers and the numerous commissions and committees. The Council anticipates important assignments for this bureau in the coming months and is confident of the capacity of the staff to handle the work assigned. Communications both within and outside the Association are of such vital importance that the presence of a well rounded, seasoned, department is a source of satisfaction to the Council.

10. *Bureau of Research and Planning.* The Council has continued its feeling of satisfaction with the activities of the Bureau of Research and Planning. This bureau, while only a few years old, has repeatedly proved its ability to develop factual information for the Council and for commissions and committees which need documented material rather than personal opinions of commission and committee members. During 1964 the bureau has developed highly useful material on workmen's compensation medical practice and has produced several socio-economic reports on specific situations which have gained wide distribution among physicians, medical schools and lay organizations. The bureau has likewise continued its researches into the numerous questions posed by the Council's decision to look into the role of medicine in society. A report on this subject will be presented to the House of Delegates.

11. *Relative Value Studies.* At the close of 1964 the revised (1964) edition of the Relative Value Studies is ready for distribution to the membership and to the many outside interests which find this publication valuable. Since the original edition in 1956 the RVS has been in demand from other medical organizations, insurance carriers, governmental agencies and many other entities who approve the nature of this work and find it extremely useful for their own purposes. Several hundred thousand copies have been distributed to date and a large volume of advance orders awaits the emergence of the 1964 revision. Plans have been made for a more or less continuous system of revision from this point forward, so that the tremendous volume of

effort, time and funds which the new edition has demanded may be reduced drastically for further editions.

Conclusion. The above digests represent only the high spots of the Council's concerns and activities during 1964. Many additional items will be found in a review of the minutes of the 1964 meetings but these are singled out as representative of some of the major areas of interest during the past year.

The Council is deeply indebted to the President and the President-Elect, both of whom have been more than willing to devote their time, efforts and talents to the complex responsibility of representing the California Medical Association before any number of private and public bodies. Both Doctor James C. Doyle and Doctor Ralph C. Teall have been unstinting in their service and to both we all owe a debt of gratitude. The same applies to a number of Councilors, commission and committee members, AMA delegates and others who have given so freely of their time and talents in presenting the true picture of medical practice in California to so many interested listeners. Special thanks are also due our dedicated staff of loyal employees who must and do adjust to the demands of the moment. Without their devoted services the work of the Association could not be accomplished.

Respectfully submitted,

CARL E. ANDERSON, *Chairman*

REPORT OF THE

Committee for Emergency Action

To the House of Delegates:

The Committee for Emergency Action was formed several years ago to provide a small body of responsible officers who could meet for decisive action at times when the Council of the California Medical Association was not in session.

During the past year the committee has functioned in this capacity and has held several meetings and several telephone conferences on matters requiring immediate action and not deferrable to the next Council meeting. Its decisions have always been referred to the Council at its next meeting and have consistently been approved by that body. A report of the committee's activities is a regular part of the Council's agenda and is made a part of the Council minutes which are regularly published in CALIFORNIA MEDICINE.

This committee is composed of the President, the President-Elect, the Speaker of the House of Delegates and the Council chairman. It has authority to call on such consultants as are desirable and to take actions subject to Council approval. It is my opinion that this committee serves an essential purpose and is responsive to the wishes of the Council as its governing body.

Respectfully submitted,

JAMES C. DOYLE, *Chairman*

REPORT OF

Trustees of the California Medical Association

To the House of Delegates:

Trustees of the California Medical Association is a non-profit corporation organized for the express purpose of holding excess funds of the California Medical Association. Its members are at all times the members of the Council of the Association.

The corporation holds an annual membership meeting at the time of the organization meeting of the Council, immediately following the adjournment of the House of Delegates, and meets on the call of the president when business must be transacted. Daily affairs are handled by the staff of the Association.

Principal holdings of the corporation at this time are Government bonds representing the investment of accumulated funds, the 693 Sutter building which houses the Association's offices and several trust funds for the benefit of employees and affiliates. These are listed on the financial report appearing on another page of this issue. Members are urged to review the financial report so that they may become familiar with the reserves behind the Association.

Respectfully submitted,

JAMES C. DOYLE, *President*

REPORT OF THE

Delegates to AMA

To the House of Delegates:

Your Delegates and Alternates to the AMA have continued their assignments during 1964 in an atmosphere of increased activity and effectiveness.

At the June AMA meeting in San Francisco all members of the delegation were present and five Delegates were honored by appointment to one or another of the reference committees. In the November meeting in Miami Beach all were present except for two Alternates and one Delegate who were ill. Again five members were placed on AMA reference committees.

The delegation last year adopted a form of organization under which the major obligations of the group are placed in the hands of five designated committees for study and recommendation. Each of these committees has five members, including Alternates, and each has functioned actively and effectively. Committees are designated as rules, resolutions, hospitality, candidates and Aces-Deuces, the last named serving as liaison with an organization within the AMA House of Delegates made up of Delegates from those states which have only one or two official Delegates. The committee form of organization has enabled designated members of the delegation to concentrate on specific objectives and to secure adequate information to alert the entire delegation at all times during the meetings. Such information is particularly helpful in the case of candidates for various elective offices, where concentrated efforts are needed to sift fact from rumor.

Your delegation has carried the wishes of the California Medical Association to the American Medical Association and has been essentially successful in its efforts. It should be borne in mind that the AMA is an organization covering the entire nation and its dependencies and that items which may be of extreme interest in one state may not draw support from other areas. On this basis we urge that California not call upon the national organization to settle matters of local interest which can and should be handled on a local basis.

Your AMA delegation is ready and anxious to carry to the national scene those matters which are of national import and can assure you that all such matters will be carefully and effectively presented and followed in the national body.

Respectfully submitted,

J. LAFE LUDWIG, *Chairman*

REPORT OF

Physicians' Benevolence Fund, Inc.

To the House of Delegates:

Physicians' Benevolence Fund, Inc., continued its benevolent activities during 1964 in the same manner as in previous years. It continued making monthly contributions to Los Angeles County Physicians Aid and responded to calls for temporary assistance from physicians or their families throughout the state.

The fund received \$27,830 income in the fiscal year ended June 30, 1964, and made expenditures of \$15,862 during that period. The excess of \$11,968 of income over expenditures went directly into reserves, which now stand at \$165,452. Income was derived from \$20,861 contributed by the California Medical Association at the rate of \$1 from the dues of each active member, \$3,691 contributed by the Woman's Auxiliary and \$3,458 received in interest from investments and loans to affiliated organizations.

During the fall months the Operating Committee of the fund met to review both activities and policies. Without going into detail it is well to repeat here that contributions by the fund are based on immediate need and are not designed to constitute a retirement income program, that all appeals are investigated at the local level, that periodic reports on recipients are furnished and that all cases of real need are handled sympathetically and tactfully. The recipients generally are widows and children of physicians.

An Operating Committee composed of Clyde L. Boice, chairman, and Doctors Elizabeth Mason-Hohl, Dudley Cobb, Alexander Fraser, Don C. Musser and George Wolf has been continually interested and active in guiding the policies of this fund and our thanks go to them for their dedicated services. There are no paid employees of the fund and the only operating expenses are the cost of an annual audit and the cost of an occasional meeting of the Operating Committee.

Thanks are also due the Woman's Auxiliary to the California Medical Association, which has continued its activities to raise funds for this activity and to make most generous contributions for its operations.

Respectfully submitted,

JAMES C. DOYLE, *President*

REPORT OF THE

Executive Secretary

To the President and the House of Delegates:

This report is made in behalf of the entire staff of the California Medical Association and will be concerning itself with the broad aspects of Association activities and status. Further details will be made available on request by the reference committee of the House of Delegates or any member. The period covered by the report will be essentially calendar year 1964.

1. *General.* The Association maintains its principal office and records at 693 Sutter St., San Francisco, a building owned by Trustees of the California Medical Association, an affiliated corporation whose members are at all times the members of the CMA Council. While several tenants are housed in the building the Association occupies about three-quarters of all usable space and in the past year has added office space in an area where a tenant was previously accommodated.

In addition, an office is maintained in Los Angeles, where one executive employee and one secretary are located. Late

in 1964 an additional office was opened in Sacramento as a joint effort with the Public Health League of California. This space will serve as headquarters for legislative representatives during legislative sessions and will be available the year around for committee members and others whose assignments take them to the state capital. Members of other professional groups comprising the Public Health League of California will also find the new office a convenience throughout the year.

Membership in the California Medical Association has continued to increase and each month sees a new high point in total membership. As pointed out in this report in each of the past several years, increased membership brings with it increased demands for service. Added services mean added personnel and increased expense. Some new activities can be taken on by the present staff and facilities while some require additional office space, executive and clerical expense, and travel and meeting costs required by the nature of the project undertaken.

Toward the close of 1964 a large state medical association released its findings from a study of personnel, administrative expenses, scientific activities and costs and related matters. This study, covering the medical associations in New York, California, Pennsylvania and Illinois, shows that the California Medical Association is being operated on a favorable basis, comparatively with the other states.

2. *Personnel.* At the end of 1964 the Association had 58 employees on the payroll, one more than a year earlier. Several changes were made during the year in work assignments and others are in contemplation through a proposed realignment in commission and committee assignments.

During the year the staff was saddened by the death of William C. Tobitt, a member of the communications staff and a highly respected and beloved member of the staff. His former position has been filled, as well as the position formerly held by Robert Marvin, who resigned to assume the post of executive secretary of the Santa Barbara County Medical Society.

During 1964 a review was made of the entire payroll for clerical and secretarial employees and an upward adjustment made to bring salaries in line with leading employers in the San Francisco area. Today the Association is numbered, for payroll levels, among the average of employers in the region and, in addition, presents to employees such fringe benefits as group life insurance, retirement annuity, and travel insurance which are considerably higher than average. These offerings are made as a means of making employment attractive and decreasing the turnover which is to be expected by all employers and which may be influenced by improved protection against contingencies.

3. *Financial.* The handling of finances running into millions is a constant assignment to the staff and includes the financial reports and management of the Association itself and four subsidiary organizations, Trustees of the California Medical Association, Physicians' Benevolence Fund, Inc., Six Ninety Three Sutter Publications Inc. and California Medical Education and Research Foundation.

Annual financial reports of all these organizations appear on another page of this issue in the form of balance sheets and operating statements for the fiscal years ended June 30, 1964. These figures are taken directly from the reports of John F. Forbes and Company, certified public accountants.

For the California Medical Association the annual report shows that a net gain of \$220,893 of income over expenditures was registered for the fiscal year, compared with a net loss of \$52,832 for the preceding fiscal year, when heavy expenses were caused by the promotion of an initiative measure on the state election ballot.

The report shows total income from members' dues of

\$1,407,017, an increase of 2.75 per cent from dues income of \$1,368,272 for the preceding fiscal year. On a per member basis the dues received in the 1964 fiscal year represent a gain of 538 active members over the preceding year.

Administrative expenses for the past year totaled \$410,145, fractionally lower than the \$413,885 recorded for the earlier year. Expenditures for scientific, educational and communications activities totaled \$786,973, or 25.8 per cent lower than the \$1,061,350 expended in the 1963 fiscal year, which included \$240,733 for the promotion of a legislative initiative measure. On a comparative basis, with this extraordinary item not considered, the costs were somewhat lower in 1964 than in the preceding year.

Decreased advertising revenues marked the fiscal year for CALIFORNIA MEDICINE, which received \$171,273 from advertising, compared with \$205,867 in the preceding year, a loss of 16.8 per cent. Publishing costs were 5.7 per cent higher, at \$244,542, compared with \$231,350. Net results, after the application of \$3 per active member as income to the journal, showed a net loss of \$5,700, compared with a net gain of \$41,708 a year earlier.

The financial report of Trustees of the California Medical Association, which is actually a holding company for accumulated net assets of the Association, shows that the year ended with a net gain of \$36,731 of income over expenditures, compared with a net gain of \$29,338 for the 1963 fiscal year. The headquarters building, owned by the Trustees, showed a net gain of \$19,440 for the year, against a net gain of \$14,412 a year earlier.

For the 1965-1966 fiscal year the staff has been working with the Finance Committee of the Council in preparing a budget which will finance the projected activities of the Association and remain within the existing level of dues. The proposed budget approved by the Finance Committee of the Council will be given to the Council for approval and then will go to the 1965 House of Delegates, which must give final approval.

During the closing months of each calendar year the Association has, for several years past, been forced to borrow funds to meet its obligations during the year-end and the early months of the next year. These borrowings, requiring interest payments, have been necessitated in great part by the custom of some component societies which collect CMA and AMA dues from their members and do not forward these dues to the CMA until just before the April 1 deadline date. This procedure forces a large volume of work on the CMA at one time and results in delayed recognition of their payments by the individual members. While there has been some improvement in this condition it appears that certain component societies will follow this practice again in 1965 and require the Association to resort to bank borrowings again. While the component societies may find that investing these funds for a short period of time may bring in some interest income, it is obvious that the overall financial situation of the CMA is being handicapped and that prompt forwarding of dues when collected will do much to insure an orderly and prompt handling of membership details and will save the Association the necessity of paying interest on borrowed funds and eliminate peak work loads.

4. *Membership.* On September 1, 1964, the date on which an official membership count is taken for purposes of representation in the House of Delegates, the Association showed 20,794 active members, a gain of 546 over the total recorded a year earlier. Membership gains were reported by 28 component societies, while eight showed a membership loss and four showed no change.

On the basis of active memberships all Councilor Districts will retain their present representation on the Council with the exception of the Second District, which will be entitled

to elect two Councilors in place of the present one. This District comprises Imperial, Inyo-Mono, Orange, Riverside and San Bernardino Counties and shows a September 1, 1964, active membership total of 1,591.

The active membership of all component societies as of September 1, 1964, and the same date a year earlier is shown in the following table:

Active Membership in the CMA by Component Societies

<i>Societies</i>	<i>Sept. 1, 1964</i>	<i>Sept. 1, 1963</i>
Alameda-Contra Costa	1,653	1,597
Butte-Glenn	96	100
Forty First	1,867	1,885
Fresno	324	316
Humboldt-Del Norte	87	88
Imperial	46	48
Inyo-Mono	11	10
Kern	255	231
Kings	34	34
Lassen-Plumas-Modoc-Sierra	27	26
Los Angeles	7,478	7,372
Marin	234	216
Mendocino-Lake	60	64
Merced	62	56
Monterey	198	183
Napa	84	84
Orange	854	791
Placer-Nevada	70	63
Riverside	292	276
Sacramento	520	506
San Benito	9	9
San Bernardino	388	371
San Diego	1,051	1,021
San Francisco	1,806	1,776
San Joaquin	237	236
San Luis Obispo	87	86
San Mateo	564	552
Santa Barbara	303	277
Santa Clara	1,035	941
Santa Cruz	124	116
Shasta-Trinity	78	72
Siskiyou	23	25
Solano	73	76
Sonoma	191	183
Stanislaus	169	166
Tehama	17	17
Tulare	110	112
Ventura	159	155
Yolo	57	52
Yuba-Sutter-Colusa	61	59
TOTAL	20,794	20,248

5. *CALIFORNIA MEDICINE.* The journal continued its program of improved quality during 1964 and remains as one of the preeminent state medical journals in the country. It was honored in 1964 by the American Medical Writers' Association, which named CALIFORNIA MEDICINE as the outstanding state medical journal and paid particular tribute to its makeup and printing. These features have always been sought after and it is gratifying to learn that others of a professional nature recognize these facets of the publication.

Financially the journal went backward in the fiscal year ended June 30, 1964. Its advertising income dropped from \$205,867 to \$171,273, a decline of 16.8 per cent. In the same period the cost of production rose 5.7 per cent, from \$231,350 to \$244,542. Net result for the year showed an excess of expense over income of \$5,700, after taking into account the sum of \$3 per dues-paying active member as income. For the preceding fiscal year the net income on this basis was \$41,708.

The decline in advertising income resulted from curtailment by many pharmaceutical producers of their journal advertising, a trend which has held for several years. New requirements of the U.S. Food and Drug Administration are held accountable for this trend and are continuing to hold many former advertisers out of the space market. Prospects for 1965 are more promising but is still too early to make any firm predictions. With a rising circulation en-

gendered both by increased membership and added outside interest, the journal will likely adjust its advertising rate structure by the end of 1965 and it is hoped that through this means further financial improvement may be had.

Late in 1964 the Finance Committee considered ways of meeting some increased costs which proposed improvements in the journal would require. These would include a better grade of paper for improved portrayal of illustrations and x-rays and a new type face for the editorial pages for improved readability. If the anticipated additional costs can be planned as a part of the 1965-1966 budget these improvements will be added to the journal during the fiscal year ahead.

6. *Annual Session.* Plans are well under way at the close of 1964 for the production of the 1965 Annual Session. This will be held in San Francisco, which housed the 1962 meeting admirably. The usual problems of space and arrangement of meetings to make efficient use of available rooms prevail again but will be worked out in the best possible fashion before the start of the meeting. Annual meeting arrangements require the combined and cooperative efforts of the staff, the scientific sections and officers and the Woman's Auxiliary. All, fortunately, give their complete cooperation in the effort to produce as fine a meeting as possible with the material and space available. Advance appearances for 1965 indicate that a highly successful and efficient operation will be produced and that members may count upon the full attention of the staff in seeing to their comfort and convenience.

For the scientific program, the Scientific Board has assured the Council that an outstanding program will be produced, complete with scientific exhibits, medical motion pictures, closed circuit television and technical exhibits. The interest of specialty organizations is becoming evident in annual session planning and the coming meeting gives assurance that many topics heretofore reserved within the sectional realms of specialty groups will be presented at a large CMA meeting where general and specialized topics will be available for a large registration.

7. *Conclusion.* As 1964 closes it is well to remind the membership again that the CMA staff is here to be of service. Ideally the staff must be of a size which can assimilate new activities and programs and handle them with skill. At the same time, there is no room for an inefficient organization set up to handle peak loads of activity and remain

virtually unemployed during slack periods. Your staff today appears to be of a size where new programs can be undertaken without the need to make personnel additions or to build a group that is not constantly busy on assigned topics. Flexibility must be maintained and is today apparent in the staff organization. Talents and resources are present for any foreseeable situation.

In return, the thanks of the staff are extended to the officers, members of the Council and the numerous commission and committee chairmen and members who devote their own time and talents to the many problems facing a large organization. Without the devotion of these many members to their assignments and responsibilities the work of the California Medical Association could not go forward so smoothly. The staff as a whole is deeply appreciative of the leadership provided by these officials.

Respectfully submitted,

JOHN HUNTON, *Executive Secretary*

REPORT OF THE

Finance Committee

To the President and the House of Delegates:

The Finance Committee presents at this time the complete financial reports of the California Medical Association and its affiliated organizations, all for the fiscal year ended June 30, 1964. These are taken directly from the audits made by John F. Forbes and Company, certified public accountants, and appear on another page in this issue of the journal.

During the year this committee has various obligations, including the preparation of an annual budget and the consideration of methods to be used in raising funds for projects which have not been foreseen during the budget preparation period or which are approved by the Council for action.

Committee meetings are held as frequently as needed, so that each item presented by the Council is acted upon promptly. Meetings on the 1965-1966 budget have been held since October and will continue until a budget is agreed upon for referral to the Council and the House of Delegates.

Respectfully submitted,

JOHN F. MURRAY, *Chairman*

ASSETS		
CASH		\$152,415
UNITED STATES TREASURY BILLS, AT COST (market value, \$498,350).....		495,618
ACCOUNTS RECEIVABLE, NET		54,629
NOTES RECEIVABLE—CENTRAL CALIFORNIA BLOOD BANK.....	\$ 92,500	
Less reserve	92,500	
NOTE RECEIVABLE—TRUSTEES OF THE CALIFORNIA MEDICAL ASSOCIATION....		100,000
FURNITURE AND FIXTURES (at nominal value).....		1
ACCRUED INTEREST		2,732
PREPAID EXPENSE AND DEFERRED CHARGES:		
Insurance	\$ 1,466	
Retirement program premium.....	11,874	
Deposits	1,260	
Other	1,160	15,760
TOTAL		<u>\$821,155</u>
LIABILITIES		
ACCOUNTS PAYABLE:		
American Medical Education Foundation.....	\$198,705	
Other	50,901	\$249,606
DEFERRED INCOME:		
Dues and subscriptions applicable to the period		
July 1 to December 31, 1964.....	\$637,077	
Other	1,907	638,984
RESERVE FOR PAST SERVICE ANNUITY PREMIUMS (Note 1).....		3,687
EXCESS OF LIABILITIES OVER ASSETS (DEFICIT) (Exhibit B)		(71,122)
TOTAL		<u>\$821,155</u>

See notes to financial statements

**CALIFORNIA
MEDICAL
ASSOCIATION**
(A Nonprofit Organization)

Balance Sheet
June 30, 1964
EXHIBIT A

INCOME:	YEAR ENDED JUNE 30	
	1964	1963
Dues and general:		
Membership dues less portion allocated to		
CALIFORNIA MEDICINE subscription.....	\$1,407,017	\$1,368,272
Fee for collection of American Medical		
Association dues	9,111	9,136
Interest earned	7,290	3,276
Other	293	11
Total	<u>\$1,423,711</u>	<u>\$1,380,695</u>
Official journal CALIFORNIA MEDICINE:		
Advertising	\$ 171,273	\$ 205,867
Nonmember subscriptions	2,472	3,279
Reprints, net	1,215	1,523
Total	<u>\$ 174,960</u>	<u>\$ 210,669</u>
Less expenditures (Schedule 2).....	244,542	231,350
Net (cost)	\$ (69,582)	\$ (20,681)
Allocated portion of members' dues.....	63,882	62,389
Net excess (deficiency) after allocation.....	<u>\$ (5,700)</u>	<u>\$ 41,708</u>
TOTAL	<u>\$1,418,011</u>	<u>\$1,422,403</u>
EXPENSES:		
Administration (Schedule 1).....	\$ 410,145	\$ 413,885
Scientific, educational, and communications		
(Schedule 2)	786,973	1,061,350
TOTAL	<u>\$1,197,118</u>	<u>\$1,475,235</u>
EXCESS (DEFICIENCY) OF INCOME OVER EXPENSES		
FOR THE YEAR.....	<u>\$ 220,893</u>	<u>\$ (52,832)</u>
OTHER CREDITS (CHARGES):		
Reduction in reserves on account of payment on loans	\$ 5,500	\$ 12,500
Adjustment to defer that portion of dues applicable to		
the period July 1 to December 31, 1962.....		(552,014)
Expenses applicable to prior years.....	(4,997)	
TOTAL	<u>\$ 503</u>	<u>\$ (539,514)</u>
EXCESS OF ASSETS OVER LIABILITIES:		
Increase (decrease) for the year.....	\$ 221,396	\$ (592,346)
At beginning of year (deficit).....	(292,518)	299,828
AT END OF YEAR (Note 2) (deficit)....	<u>\$ (71,122)</u>	<u>\$ (292,518)</u>

(See notes to financial statements)

Statement of Income
and Expenses
for the
Years Ended
June 30, 1964 and 1963
EXHIBIT B

**CALIFORNIA
MEDICAL
ASSOCIATION**

**Statement of
Administration Expenses
for the
Years Ended
June 30, 1964 and 1963
EXHIBIT B—SCHEDULE 1**

		YEAR ENDED JUNE 30	
		1964	1963
SALARIES (see note) :			
Executive		\$ 56,175	\$ 39,260
Other		69,174	59,214
Total		\$125,349	\$ 98,474
OFFICE:			
Rent		\$ 16,012	\$ 17,457
Supplies		18,305	23,119
Equipment purchases and maintenance.....		6,703	7,556
Telephone and telegraph.....		13,262	12,471
Postage		2,600	4,566
Professional fees (other than legal).....		5,130	2,630
Los Angeles office (other than salaries).....		3,852	5,672
Sundry		3,946	3,676
Total		\$ 69,810	\$ 77,147
Less services charged to other accounts (including billings to others of \$12,989 and \$14,096).....		38,233	37,750
Net		\$ 31,577	\$ 39,397
LEGAL		\$ 36,529	\$ 40,186
MEETINGS:			
Annual session		\$ 39,344	\$ 50,768
American Medical Association.....		26,811	34,835
Student-American Medical Association.....		4,797	5,319
Council		11,030	8,419
Medical Society executives.....		8,795	7,710
County officers' conference.....		7,890	12,990
Total		\$ 98,667	\$120,041
Less annual session exhibitors' fees.....		40,260	39,405
Net		\$ 58,407	\$ 80,636
TRAVEL:			
Council		\$ 25,639	\$ 25,107
Officers		16,954	19,171
Administrative		13,889	10,692
Total		\$ 56,482	\$ 54,970
GROUP INSURANCE AND RETIREMENT PROGRAM:			
Retirement Program—Current service.....		\$ 23,577	\$ 22,273
Group Life Insurance.....		8,549	7,861
California Physicians' Service.....		14,328	14,294
Total		\$ 46,454	\$ 44,428
OTHER:			
The Woman's Auxiliary.....		\$ 7,772	\$ 7,304
Physicians' Placement Service.....		16,908	16,753
Payroll taxes		16,695	15,442
Personal property taxes		2,140	1,918
Dues and subscriptions.....		4,790	5,499
Insurance		4,008	3,336
Interest		2,554	5,062
Sundry		480	480
Total		\$ 55,347	\$ 55,794
TOTAL		\$410,145	\$413,885

NOTE: The total payroll for years ended June 30 was \$444,935 for 1964 and \$424,128 for 1963, of which \$319,586 and \$325,654, respectively, are included in other expense classifications or were charged to other organizations.

**CALIFORNIA
MEDICAL
ASSOCIATION**

	YEAR ENDED JUNE 30	
	1964	1963
SCIENTIFIC, EDUCATIONAL, AND COMMUNICATIONS:		
Medical services	\$ 30,596	\$ 31,155
Public agencies (Note 1)	27,172	41,358
Community health services	52,158	56,530
Bureau on communications	183,743	199,518
Scientific board	60,936	49,409
Medical education (Note 2)	18,628	15,467
Cancer committee	17,060	15,239
Professional welfare	28,212	16,468
Bureau of research and planning	75,127	74,742
Committee for medical progress		240,733
Committee on legislation	48,243	84,028
Special committees of the council	17,288	23,148
Contributions:		
American Medical Education Foundation	195,958	190,567
Physicians' Benevolence Fund, Inc.	20,682	19,988
California League for Nursing	3,000	3,000
California Commission for the Accreditation of Nursing Homes and Related Facilities	3,000	
Medical Libraries (Note 3)	5,170	
TOTAL	\$786,973	\$1,061,350

OFFICIAL JOURNAL "CALIFORNIA MEDICINE":

Printing	\$160,010	\$ 152,292
Salaries	37,890	36,873
Advertising sales expenses:		
Salary	15,550	15,250
Travel	6,841	7,426
Sundry	2,581	684
Rent	3,516	3,516
Telephone and telegraph	3,475	3,301
Postage and mailing	9,800	8,999
Addressograph and supplies	2,430	2,458
Illustrations	2,916	2,123
Editorial	600	
Discounts	2,896	3,488
Bad debts	1,025	
Sundry	1,612	1,840
Total	\$251,142	\$ 238,250
Less representation fee	6,600	6,900
NET	\$244,542	\$ 231,350

NOTE 1: In 1964, the amount shown is after State participation of \$5,358.

NOTE 2: Medical education expenses are reflected net of the following credits:

	1964	1963
Postgraduate fees	\$16,827	\$17,240
Special grants applied	6,234	12,950
Total	\$23,061	\$30,190

NOTE 3: Contribution for Medical Libraries for the year ended June 30, 1963 was made during the current fiscal year in the amount of \$4,997 and was charged to expenses applicable to prior years in Exhibit B.

NOTE 1: The California Medical Association, in addition to the Group Pension Program effective January 1, 1961, has made provision for a Past Service Pension for certain full time employees. The unpaid balance due on the single premium required to fund this Past Service Pension at June 30, 1964, aggregated \$31,970 for which there is a balance of \$3,687 on hand from funds remitted by the Trustees of the California Medical Association. The remaining amount, to be paid out of future operations, has not been set up as a liability on the books of the Association at June 30, 1964, and is not reflected in the accompanying financial statements.

NOTE 2: The California Medical Association is one of the defendants in an action in the San Francisco Superior Court in which damages of \$6,200,000 are sought. In the opinion of Counsel, the liability to the California Medical Association will consist only of the costs of defense, which are not presently ascertainable.

NOTE 3: The California Medical Association has agreed to indemnify the California Physicians' Service for losses incurred in the payment of benefits under the MD-Plan 65 Contract (1959) in excess of 90 per cent of the dues income collected. According to information furnished by the California Physicians' Service the payments to June 30, 1964, were estimated to be 87.37 per cent of the dues income, on a cumulative basis.

NOTE 4: The California Medical Association and the California Osteopathic Association have jointly agreed that the California College of Medicine (formerly College of Osteopathic Physicians and Surgeons) shall receive funds of at least \$225,000 per year for a period of four years from 1962. It is the opinion of the management, that the California Medical Association will not be called upon for any funds in addition to those already provided.

Statement of
Expenses other than
Administrative
for the
Years Ended
June 30, 1964 and 1963
EXHIBIT B—SCHEDULE 2

Notes to
Financial Statements
June 30, 1964

**TRUSTEES OF THE
CALIFORNIA MEDICAL
ASSOCIATION**

(A Nonprofit Corporation)

Balance Sheet
June 30, 1964

EXHIBIT A

ASSETS	
CASH	\$ 4,700
UNITED STATES TREASURY BONDS, AT MATURITY VALUE (market value, \$1,007,693) (Note 4)	1,121,000
UNITED STATES TREASURY BILLS, AT COST (market value, \$49,697)	49,583
NOTE AND ACCOUNT RECEIVABLE	2,460
ACCRUED INTEREST ON BONDS	1,651
INVESTMENTS, AT COST	
Pacific Magnetic Tape Equipment Co. (Note 1)	\$ 9,000
Six Ninety Three Sutter Publications, Inc.	1,000
.....	10,000
PROPERTY, AT COST (subject to mortgage) :	
Land	\$ 87,400
Building and improvements	295,938
.....	
Total	\$383,338
Less accumulated depreciation	49,681
.....	
Net depreciated value	333,657
EQUIPMENT, AT NOMINAL VALUE	1
CASH SURRENDER VALUE OF LIFE INSURANCE POLICY	25,916
PREPAID INSURANCE	1,193
REAL ESTATE TAXES APPLICABLE TO SUBSEQUENT YEAR (contra)	10,000
TOTAL	<u>\$1,560,161</u>

LIABILITIES	
CALIFORNIA MEDICAL ASSOCIATION:	
Note payable	\$100,000
Account payable	862
.....	\$ 100,862
MORTGAGE PAYABLE	70,853
OTHER ACCOUNTS PAYABLE AND ACCRUED INTEREST	317
ACCRUED REAL ESTATE TAXES (contra)	10,000
TRUST FUNDS	88,860
DEFERRED COMPENSATION PAYABLE	7,500
EXCESS OF ASSETS OVER LIABILITIES:	
Contributed	\$883,193
Excess of income over expenses (Exhibit B)	398,576
.....	1,281,769
TOTAL	<u>\$1,560,161</u>

See notes to financial statements

Statement of Income
and Expenses
for the Year Ended
June 30, 1964

EXHIBIT B

INCOME:	
Excess of property income over expenses (Schedule 1)	\$ 19,440
Other:	
Interest on United States Treasury bonds and bills	\$ 28,343
Interest on notes	602
Dividend (Pacific Magnetic Tape Equipment Co.)	900
Miscellaneous	35
.....	29,880
Total income	\$ 49,320
EXPENSES (other than property) :	
Fees	\$ 1,954
Insurance	185
.....	
Total expenses	2,139
Remainder	\$ 47,181
OTHER CHARGES:	
Net premium on life and retirement insurance policy	\$ 4,450
Provision for the retirement or other benefit of an employee of an affiliated organization	3,000
Provision for deferred compensation	3,000
.....	10,450
EXCESS OF INCOME OVER EXPENSES:	
Current year	\$ 36,731
Beginning of year	361,845
.....	
AT END OF YEAR	<u>\$398,576</u>

See notes to financial statements

INCOME FROM RENTALS:

California Medical Association.....	\$49,252	
Others	21,350	
TOTAL		\$70,602

**TRUSTEES OF THE
CALIFORNIA MEDICAL
ASSOCIATION**

EXPENSES:

Utilities	\$ 4,730	
Janitor service and maintenance.....	13,676	
Repairs—Plumbing, electric, etc.....	1,309	
Alterations	1,956	
Insurance	841	
Elevator inspection and service.....	1,367	
Supplies	587	
Sundry	218	
Total	\$24,684	
Taxes	9,721	
Interest on mortgage.....	3,169	
Interest on borrowed money for purchase of property and making improvements thereon.....	3,520	
Total before depreciation.....	\$41,094	
Depreciation	10,068	
TOTAL		51,162
EXCESS OF PROPERTY INCOME OVER EXPENSES.....		\$19,440

**Statement of
Property Income
and Expenses
for the Year Ended
June 30, 1964
EXHIBIT B—SCHEDULE 1**

NOTE 1: The Trustees of the California Medical Association, as a nonprofit corporation, owns all of the outstanding stock of the Pacific Magnetic Tape Equipment Co., which was formed for the purpose of merchandising magnetic tape equipment as an adjunct to the activities of the Audio-Digest Foundation, a wholly-owned subsidiary of the California Medical Association. An unaudited financial statement of the Pacific Magnetic Tape Equipment Co., as of June 27, 1964, reflects a net worth of \$19,148 at that date.

**Notes to
Financial Statements
June 30, 1964**

NOTE 2: The portion of the Trust Funds applicable to the retirement or similar benefit to Mr. and Mrs. Ben H. Read, amounting to \$48,000 at June 30, 1964, has not been segregated from other assets of the corporation as directed by Chapter XVII of the bylaws of the corporation which states: "... All assets of this fund shall be held separate and apart from all other assets and property of the corporation ..."

NOTE 3: The Trustees of the California Medical Association is guarantor to the Crocker-Citizens National Bank for loans to a maximum of \$46,000 for the California Commission for Accreditation of Nursing Homes and Related Facilities. Loans outstanding under this guaranty at June 30, 1964 were reported to aggregate \$46,000.

NOTE 4: The United States Treasury bonds, kept in a custodian account with the Crocker-Citizens National Bank, are pledged to that bank for loans when and if needed, and for loans for which the Trustees are guarantor. There were no direct loans payable at June 30, 1964.

PHYSICIANS'
BENEVOLENCE FUND, INC.
(A Nonprofit Corporation)

Statement of Assets
June 30, 1964

EXHIBIT A

ASSETS	
CASH—CROCKER-CITIZENS NATIONAL BANK.....	\$ 13,793
INVESTMENTS:	
U.S. Treasury 2½ % bonds, at maturity values:	
Due December 15, 1969.....	\$10,000
Due December 15, 1972.....	34,000
Total (market value, \$39,686).....	\$44,000
U.S. Treasury bills, at cost:	
Due September 3, 1964, \$50,000.....	\$49,583
Due September 24, 1964, \$20,000.....	19,824
Total (market value, \$69,535).....	69,407
Total	113,407
NOTE RECEIVABLE SECURED BY DEED OF TRUST—LOS ANGELES COUNTY PHYSICIANS AID ASSOCIATION (due in quarterly installments of \$1,000 plus interest at 2½ % per annum— Original amount, \$50,000).....	38,000
ACCRUED INTEREST RECEIVABLE.....	252
TOTAL	<u>\$165,452</u>
SOURCE OF ASSETS	
CONTRIBUTED AT ORGANIZATION.....	\$ 92,132
EXCESS OF INCOME OVER EXPENDITURES (Exhibit B).....	73,320
TOTAL	<u>\$165,452</u>

Statement of Income
and Expenditures
for the Year Ended
June 30, 1964

EXHIBIT B

INCOME:	
Contributions received:	
California Medical Association (see note).....	\$20,681
The Woman's Auxiliary of the California Medical Association	3,691
	\$24,372
Interest earned:	
U.S. Treasury bonds and bills.....	\$ 1,892
Loans	1,566
	3,458
TOTAL	\$27,830
EXPENDITURES:	
Payments to beneficiaries:	
Los Angeles County Physicians Aid Association.....	\$ 6,000
Others	9,453
Total payments to beneficiaries.....	\$15,453
Other	409
TOTAL	<u>15,862</u>
EXCESS OF INCOME OVER EXPENDITURES:	
Current year	\$11,968
Beginning of year.....	61,352
END OF YEAR.....	<u>\$73,320</u>

NOTE: The constitution of the California Medical Association, Article IV, Section 6, provides: "At least \$1 out of the annual dues paid by each active member of the Association shall be allocated to the Physicians' Benevolence Fund, Inc., a corporation, and shall be used for the purposes as set forth in that corporation's Articles and Bylaws."

ASSETS

CASH IN BANK.....	\$40,995
CASH ON HAND (Note 1).....	25,000
RECEIVABLE FROM STATE OF CALIFORNIA.....	3,739
TOTAL	\$69,734

LIABILITIES AND (DEFICIT)

DUE TO CALIFORNIA MEDICAL ASSOCIATION.....	\$18,583
UNEXPENDED PORTION OF GRANTS AND RESTRICTED CONTRIBUTIONS RECEIVED:	
Audio-Digest Foundation (Note 1).....	\$38,750
United States Department of Health, Education, and Welfare (Note 2).....	13,312 52,062
EXCESS OF INCOME OVER EXPENDITURES (DEFICIT).....	(911)
TOTAL	\$69,734

See notes to financial statements

**CALIFORNIA MEDICAL
EDUCATION AND
RESEARCH FOUNDATION**
(A Nonprofit Corporation)

Balance Sheet
June 30, 1964

EXHIBIT A

	Total	Audio-Digest Foundation	U.S. Dep't of Health, Education, and Welfare	Dep't of Mental Health State of California	California Medical Association	General Funds
INCOME:						
Grants and restricted contributions	\$43,378	\$25,000	\$18,378			
Other	15,903			\$12,196	\$3,677	\$ 30
TOTAL	\$59,281	\$25,000	\$18,378	\$12,196	\$3,677	\$ 30
EXPENDITURES:						
Contribution—California College of Medicine.....	\$18,750	\$18,750				
Services:						
Administrative	7,662		\$ 5,358	\$ 2,304		
Other	12,403		5,189	7,192	\$ 22	
Consultants.....	155				155	
Supplies and printing.....	1,923		604	591	427	\$ 301
Equipment	450		320	130		
Mailing and postage.....	633		310	217	52	54
Telephone and telegraph.....	112		95	15	2	
Travel and meetings.....	4,690		1,532	162	2,996	
Charge to cover payroll taxes, etc.	1,154		651	503		
Professional fees	679					679
Disallowances			(655)			655
Other	461		436		23	2
TOTAL	\$49,072	\$18,750	\$13,840	\$11,114	\$3,677	\$1,691

UNEXPENDED PORTION OF GRANTS AND RESTRICTED CONTRIBUTIONS RECEIVED:

Increase, current year	\$ 6,250	\$ 4,538
Balance, beginning of year.....	32,500	8,774
BALANCE, END OF YEAR	\$38,750	\$13,312

EXCESS OF INCOME OVER EXPENDITURES (DEFICIT):

Increase (decrease) current year.....	\$ 1,082		\$(1,661)
Transfer to general funds, as allowed.....	(1,082)		1,082
Balance, beginning of year.....			(332)
BALANCE, END OF YEAR.....			\$ (911)

See notes to financial statements

Statement of
Income
Expenditures
and
Fund Balances
for the
Year Ended
June 30, 1964

EXHIBIT B

NOTE 1: The cash on hand of \$25,000 consisted of a check received from the Audio-Digest Foundation. Subsequent to June 30, 1964, this check was replaced by another check for \$25,000 without unacceptable specific directives attached thereto. Contributions received from the Audio-Digest Foundation are to be used solely for medical educational purposes.

NOTE 2: The Foundation has been awarded community health project grants by the United States Department of Health, Education, and Welfare, which have been applied as follows:

Period of Grant	Amount	Funds Received	Applied	Unused Balance
6-1-62- 5-31-63	\$14,700	\$11,777	\$ 8,182	\$ 3,595
6-1-63- 5-31-64	26,131	14,132	13,606	4,121
6-1-64-11-30-65	43,113	10,778	1,587	13,312*

*Balance at June 30, 1964

Notes to
Financial
Statements
June 30, 1964

**SIX NINETY THREE
SUTTER
PUBLICATIONS, INC.**

Balance Sheet
June 30, 1964

EXHIBIT A

ASSETS	
CASH	\$1,366
ACCOUNTS RECEIVABLE	369
INVENTORY	1,028
DEPOSIT AND DEFERRED ORGANIZATIONAL EXPENSE	91
TOTAL	<u>\$2,854</u>
LIABILITIES AND STOCKHOLDER'S EQUITY	
LIABILITIES:	
Accounts payable	\$ 50
Federal income tax payable	60
Total liabilities	\$ 110
STOCKHOLDER'S EQUITY:	
Capital stock (authorized, 2,500 shares of \$10.00 par value each; issued and outstanding, 100 shares)	\$1,000
Retained earnings (Exhibit B)	1,744
Total stockholder's equity	2,744
TOTAL	<u>\$2,854</u>

NOTE: The Trustees of the California Medical Association is the sole stockholder of this Corporation.

Statement of Income
and Retained Earnings
for the Year Ended
June 30, 1964

EXHIBIT B

OPERATING REVENUE:	
Sales	\$5,664
Cost of goods sold	2,698
GROSS PROFIT ON SALES	\$2,966
EXPENSES:	
Office expense:	
Services	\$1,200
Rent	300
Supplies	61
Fees	375
Other	21
Shipping expense:	
Services	\$ 300
Postage, freight, and express, net	338
Personal property taxes	35
State franchise and sales tax	105
TOTAL	2,735
NET INCOME BEFORE FEDERAL INCOME TAX	\$ 231
FEDERAL INCOME TAX	60
NET INCOME FOR THE YEAR	\$ 171
RETAINED EARNINGS:	
At beginning of the year	1,573
AT END OF THE YEAR	<u>\$1,744</u>

Technical Exhibits

TECHNICAL EXHIBITS will be housed in the Fairmont Hotel's Grand Ballroom, which may be reached from the Terrace Floor of the hotel or the California Street entrance to the Tower. Here the many exhibitors will present their products and services for members of the Association.

All exhibits and all products exhibited have been screened by a committee as a means of eliminating those which do not meet high standards. The exhibitors agree to this procedure and agree that by this means each will be in good company.

Here in one area will be found the latest developments in

drugs, equipment and services to aid the physician in his professional activities. All physicians are urged to visit the exhibits; meetings have been planned to allow ample time for this important activity. Your visit will not only help bring your own knowledge up to date, but also, it will demonstrate to our exhibitors, who contribute so much to the success of the meeting, that we recognize and appreciate their fine cooperation.

Exhibits will be open from 9 a.m. to 5 p.m. each day, with an early closing on Wednesday.

ABBOTT LABORATORIES Booth 37
North Chicago, Illinois

ABBOTT LABORATORIES invites you to visit our exhibit. Our representatives will be happy to answer questions you may have concerning our leading products and new developments.

AMERICANA CORPORATION Booth 32
Beverly Hills

Newly revised 1965 AMERICANA ENCYCLOPEDIA and MIN/MAX Teaching Machine.

AMES COMPANY, INC. Booth 84
Elkhart, Indiana

DEXTROSTIX, a reagent strip for determining blood glucose levels with a single drop of blood within one minute will be featured by AMES COMPANY, INC. Other simplified diagnostic aids will also be displayed and demonstrated.

ARNAR-STONE LABORATORIES, INC. Booth 66
Mount Prospect, Illinois

AMERICAINE Topical Anesthetic — 20 per cent dissolved benzocaine in a water soluble base-ointment, liquid, suppositories and aerosol forms. Aerosol operates rightside up or upside down for contortion-free application. HAZEL-BALM—cooling, soothing witch hazel and emollient lanolin in aerosol form—provides a comforting "cushion of foam." TETRASULE—prolonged protection against attacks of angina pectoris—b.i.d. dosage of PETN with or without sedation.

AUDIO-DIGEST FOUNDATION Booth 56
Pacific Medical Equipment Co.
North Hollywood

AUDIO-DIGEST FOUNDATION (a non-profit subsidiary of the California Medical Association) gives the busy physician a time-saving tour through the best of some 600 current medical journals, plus the highlights of scores of national meetings. Time-proven, but still unique—these medical tape-recorded services are now offered in seven series—General Practice, Surgery, Internal Medicine, Obstetrics and Gynecology, Anesthesiology and Ophthalmology.

Digest subscribers listen in their car, home or office. Carefully selected tape equipment for playing the Digests is offered at the convention by Pacific Medical Equipment Co.

ASTRA PHARMACEUTICAL PRODUCTS, INC. Booth 35
Worcester, Massachusetts

AYERST LABORATORIES Booths 67 & 68
Los Angeles

PENBRITIN, a new semi-synthetic penicillin, effective against both gram-negative and gram-positive organisms, will be featured along with other specialties of AYERST LABORATORIES' manufacture and research. All physicians are cordially invited to visit our exhibit and discuss all products of interest of our manufacture with our professional representatives who will be on duty throughout the convention.

BARNES-HIND LABORATORIES Booth 76
Sunnyvale

BARNES-HIND LABORATORIES will exhibit their complete line of HEB-CORT creams and lotions, brand of hydrocortisone creams and lotions, and TRANQUINAL (acetylcabromal 0.13 gm., bromisovalum 0.25 gm., scopolamine hydrobromide 0.10 mg.), the ideal daytime sedative. Complete information and product literature may be obtained at Booth No. 76.

DON BAXTER, INC. Booth 75
Glendale

THE FINEST IN PARENTERALS—The pioneer company in the parenteral field displays medically engineered products innovated to provide safety through simplicity.

BERKELEY MEDICAL INSTRUMENTS Booth 104
Berkeley

Accurate HEMOGLOBIN, serum CHOLESTEROL, and true GLUCOSE determinations now can be done in minutes, in the doctor's office or in the laboratory. These new compact instruments, using simplified procedures, improve accuracy and provide "on the spot results." Procedures are so simplified and the instrument so reliably designed that even non-technical operators get results reproducible within 2 to 3 per cent. Supply costs per test are very inexpensive—as little as 27c, 24c, and 11c, respectively, for the cholesterol, glucose, and hemoglobin tests. Solid state construction and advanced component features assure reliable, completely reproducible performance.

THE BIRTCHER CORPORATION
Los Angeles

Booth 87

The BIRTCHER DEPOLARIZER and other cardiac recording, monitoring, and resuscitation equipment.

BRISTOL LABORATORIES
Syracuse, New York

Booth 7

BRISTOL LABORATORIES' exhibit features POLYCILLIN (ampicillin). This newest member of the BRISTOL family of synthetic penicillins is the first oral penicillin bactericidal against a significant number of Gram-negative and full spectrum of penicillin G sensitive Gram-positive pathogens.

BURROUGHS WELLCOME & CO. (U.S.A.) INC. Booth 51
Tuckohoe, New York

Please visit us for information on our products and the newest developments from the extensive research facilities of BURROUGHS WELLCOME & Co. Of particular interest at this meeting are NEOSPORIN and CORTISPORIN ointments and creams for topical bacterial infections, MANTADIL cream for relief of itching, ACTIFED for respiratory congestion and our entire EMPIRIN Compound with Codeine family of products including our latest addition, ASCO-DEEN-30.

CASS & JOHANSING
Los Angeles

Booth 12

Representatives will be present to discuss approved County Medical Association Insurance Programs — Professional Liability, Group Disability, Non-Cancellable Disability, Life, and Accidental Death and Dismemberment.

In addition, assistance in complete insurance programing will be available.

CIBA PHARMACEUTICAL COMPANY
Summit, New Jersey

Booth 61

Exhibit features the antihypertensive agent SER-AP-ES® (reserpine 0.1 mg., hydralazine hydrochloride 25 mg., hydrochlorothiazide 15 mg.). Unique benefits discussed by representative: multiple antihypertensive action, diuresis, increased renal blood flow, etc.

THE COCA-COLA COMPANY
Atlanta, Georgia

Booth 86

Ice-cold COCA-COLA served through the courtesy and co-operation of THE COCA-COLA BOTTLING COMPANY of California, and THE COCA-COLA COMPANY.

STUART F. COOPER CO.
Los Angeles

Booth 106

Doctors stationery, STUARTS medical records and forms, STUARTS laboratory report forms, medical printing, engraving and stock forms.

CORECO RESEARCH CORP.
New York, New York

Booth 53

The CORET CAMERA embodies the principle of electronic flash and constant automatic control of such factors as distance, aperture, field, and exposure. Now, for the first time, CORECO offers a completely automatic professional clinical camera purposely designed to achieve the ultimate in surface, intra-oral, and intra-tubular photography. Because of the simplicity of operation, even an inexperienced doctor or nurse can achieve consistently perfect color transparencies.

CUTTER LABORATORIES
Berkeley

Booth 52

Products from leadership in Human Blood Fractions Research will be featured at the CUTTER LABORATORIES, Berkeley, California, booth. Among these are HYPERTET™ (tetanus immune globulin—human), HYPERTUSSIS® (pertussis immune globulin—human) and HYPAROTIN™ (mumps immune globulin—human). Complete information on other prescription products will also be available.

DAIRY COUNCIL OF CALIFORNIA
Sacramento

Booth 81

Theme: "They Look to You for Answers." Current nutrition research facts are available for the doctor's use in making dietary recommendations for patients of all ages. Scientifically accurate booklets and leaflets on normal nutritional needs, as well as diet prescription pads for selected weight control programs (with provisions for individual adjustments by the doctor) also can be obtained without charge. All materials have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

DOME CHEMICALS INC.
New York, New York

Booth 44

DOME CHEMICALS INCORPORATED, world leader in dermatologicals will feature dermatological specialties that are of general interest to the members of the California Medical Association. Topical steroid products as CORT-DOME®, NEO-CORT-DOME®, DOMEFORM-HC®, LIDA-MANTLE-HC- and COR-TAR-QUIN™ will be presented.

We will also feature at this meeting, ALLPYRAL®, DOME's new and exclusive line of alum precipitated pyridine extracts.

THE DOYLE PHARMACEUTICAL COMPANY Booth 107
A Division of The Dietene Company
Minneapolis, Minnesota

Have you tasted MERITENE? MERITENE is the good-tasting Protein-vitamin-mineral food supplement prescribed to provide concentrated nutrition for patients with poor appetite or tolerance for ordinary food. Visit our booth and let us serve you a cool, refreshing MERITENE Nourishment.

While there, review also our DIETENE Reducing Plan, designed to get better cooperation from over-weight patients. The DIETENE Plan provides optimum nutrition and maximum satiety without the use of drugs.

MERITENE and DIETENE are advertised only to the Medical Profession.

DUKE LABORATORIES, INC.
South Norwalk, Connecticut

Booth 82

DUKE LABORATORIES will display their complete line of ELASTOPLAST elastic adhesive bandages and dressings. ELASTOPLAST dressings and coverlets are offered in a wide variety of sizes and pre-cut shapes. Other DUKE specialties will include GELOCAST, a prepared Unna Paste bandage; EYE OCCLUSORS; SALICYLIC ACID PLASTER; NIVEA Creme, NIVEA Skin Oil, and Basis Soap; and MELLOBATH, a water-dispersible bath oil.

ENCYCLOPAEDIA BRITANNICA
San Francisco

Booth 17

1965 Edition of ENCYCLOPAEDIA BRITANNICA, with relative material and services, is available on an attractive exhibit offer.

CHARLES O. FINLEY & CO. INC. Booth 4
Los Angeles

FLINT LABORATORIES, INC. Booth 34
Morton Grove, Illinois

SYNTHROID® (sodium levothyroxine) the pure thyroid hormone will be featured. A new injectable dosage will be introduced. Complete product information will be available.

FULLER PHARMACEUTICAL COMPANY Booth 29
Minneapolis, Minnesota

FULLER invites physicians to stop by their exhibit to discuss the FULLER SURGICAL SHIELD, TUCKS and other FULLER Products.

GEIGY PHARMACEUTICALS Booth 36
Yonkers, New York

GEIGY PHARMACEUTICALS cordially invites Members and Guests of the Association to visit its exhibit. The exhibit features important new therapeutic developments in the management of cardiovascular disease as well as current concepts in the control of inflammation; hypertension and edema; depression; obesity, and other disorders, which may be discussed with representatives in attendance.

GENUINE CONTOUR CHAIR Booths 100 & 101
San Francisco

GERBER PRODUCTS COMPANY Booth 3
Fremont, Michigan

MODILAC—GERBER Baby Formula is milk adapted to the infant's physiologic requirements by the addition of a selected carbohydrate, replacement of butterfat with corn oil and supplementation with needed vitamins and iron. Please request complete information on this and other GERBER baby foods.

GREAT BOOKS OF THE WESTERN WORLD Booth 47
Chicago, Illinois

GREAT BOOKS OF THE WESTERN WORLD, featuring the amazing new literary invention, "THE SYNTOPICON." We invite you to visit Booth No. 47 for preview and demonstration.

HEINZ BABY FOODS Booth 95
Pittsburgh, Pennsylvania

HEINZ BABY FOODS, world's best known, are made by a patented cooking process to assure maximum nutrition, fresher flavor, more natural color and smoother texture. This process, used also for HEINZ CEREALS, maintains uniform quality in these foods. Please stop at our booth, and be sure to register for our nutritional materials.

HOLLAND-RANTOS COMPANY, INC. Booth 105
New York, New York

H-R exhibit will feature and representatives will be pleased to discuss:

HYVA Gentian Violet Vaginal Tablets . . . A simple vaginal antimycotic treatment.

Improved NYLMERATE Jelly & NYLMERATE Antiseptic Solution Concentrate for: Trichomoniasis, Leukorrheas and Mixed Infections.

HOLLANDEX Skin Ointment for dermal disorders—dia-

per rash; chafing; skin dryness; prickly heat; sunburn.

KOROMEX (a) Vaginal Jelly for conception control when "Jelly Alone" is advised.

KORO-FLEX Contouring Diaphragms and Sets.

KOROMEX Diaphragms and Sets.

KOROMEX Douche Powder.

KORO Sanitary Napkin Deodorant Spray.

INGRAM PHARMACEUTICAL COMPANY Booth 9
San Francisco

INGRAM PHARMACEUTICAL COMPANY will exhibit CANTHARONE for the removal of warts along with its well known THEX line.

JACUZZI RESEARCH INC. Booth 58
Berkeley

Portable JACUZZI WHIRLPOOL BATH. The JACUZZI Hydro-massage unit will be displayed in operation. Hydro-massage, long used as an aid in relieving the pain associated with arthritis, bursitis, rheumatism and muscular fatigue, is now available in this lightweight, compact, portable unit. Exhibit will demonstrate the simple and easy-to-use features of the JACUZZI.

JOHNSON & JOHNSON Booths 59 & 60
New Brunswick, New Jersey

The JOHNSON & JOHNSON exhibit will feature the latest improvements in surgical dressings and professional specialty products as developed by the JOHNSON & JOHNSON RESEARCH LABORATORIES. The most recent advances for the practice of medicine include:

SURGICEL Brand Absorbable Hemostat, a major advance in the control of hemorrhage which does not depend upon the normal clotting mechanism.

DERMICEL Brand Surgical Tape, a newly-improved special-purpose dressing tape for patients with unusual adhesive tape sensitivity, is an outstanding addition to a complete line of adhesive tape products. Well-informed representatives will be pleased to discuss these products or provide information on any other items made available by the world's largest manufacturer of surgical dressings and baby products.

KENWOOD LABORATORIES, INC. Booth 21
New Rochelle, New York

Featured in our display is PAPAVALRAL L. A. capsules, a product from the Cardiac Division of KENWOOD LABORATORIES, INC. A continuous controlled release combination of a vasodilator pentaerythritol and a smooth muscle relaxant ethylpapaverine (ethaverine hydrochloride) for the aid in treatment of angina pectoris and peripheral vascular diseases. PAPAVALRAL is designed to increase coronary reserve for normal daily living.

KEY PHARMACEUTICALS, INC. Booth 33
Miami, Florida

KEY PHARMACEUTICALS invites physicians to stop at this exhibit to discuss the unique sustained-action of NITROGLYN and other KEY Products.

KNOLL PHARMACEUTICAL COMPANY Booth 78
Orange, New Jersey

DILAUDID ampules, multiple dose vials and soluble tablets for prompt pain relief. DILAUDID Cough Syrup for persistent harassing cough. METRAZOL, NICO-METRAZOL, VITA-

METRAZOL tablets and elixir for geriatric and convalescent patients. QUADRINAL and VEREQUAD tablets and suspension for relief of bronchospasm. AKINETON for organic and drug-induced parkinsonism. Introducing our *new* bronchodilator/expectorant THEOKIN ELIXIR for the symptomatic treatment of bronchial asthma.

LEDERLE LABORATORIES Booth 1
A Division of American Cyanamid Company
Pearl River, New York

Members of the California Medical Association and their guests will be most cordially welcomed at the LEDERLE Booth No. 1. Our medical representatives, who have access to the world-wide LEDERLE research organization, are prepared to furnish information regarding LEDERLE products and your related medical questions.

ELI LILLY AND COMPANY Booth 26
Indianapolis, Indiana

You are cordially invited to visit the LILLY exhibit. Our sales representatives in attendance welcome your questions about LILLY products, and offer you precise information on recent therapeutic developments of LILLY research.

LOMA LINDA FOODS Booth 27
Riverside

LOMA LINDA FOODS, manufacturers of the tasty hypoallergenic infant soy milk SOYALAC, will be pleased to show evidence of the nutritional adequacy of their product. The company is America's exclusive manufacturer of fiber-free soy milk. Qualified attendants will be pleased to explain why this milk is unusual in that it does not tend to raise infants' serum cholesterol. Uses of this milk for adult ulcer patients and in cholesterol-lowering diets will be discussed. Samples of this flavorful product will be served.

MEAD JOHNSON LABORATORIES Booth 109
Evansville, Indiana

The MEAD JOHNSON LABORATORIES' exhibit has been arranged to give you the optimum in quick service and product information. To make your visit productive, specially trained representatives will be on duty to tell you about their products.

MEDCO ELECTRONICS Booth 25
Tulsa, Oklahoma

An instant, highly accurate, thyroid test may be obtained at the MEDCO Booth with the new, transistorized ACHILLEOMETER. With a greatly expanded scale, a "no reflex" indicator and pin point accuracy timed at one one-thousandths of a second, the ACHILLEOMETER provides definitive interpretations of the Achilles Reflex Test; enables dosage titration with serial readings.

Also, see the new MEDCO SONLATOR MARK V, providing synchronized currents for faster therapy and more precise trigger point location and treatment.

MEDICAL MANAGEMENT CONTROL Booth 99
San Francisco

Member: Society of Professional Business Consultants.

Material and information on the four major areas of service to which MEDICAL MANAGEMENT CONTROL devotes itself exclusively in serving the physician's needs in the management of solo, partnership, group or association practice. These areas include:

1. Practice management consultation—Including book-keeping services, tax and financial planning and control.

2. Facilities management—Including feasibility studies, planning construction, creation, supervising, and reorganization of Medical Arts Centers.

3. General and special surveys of solo, partnerships, groups and associations.

4. Partnership, group and association management — Including business advice on formation of such groups and follow-through procedures to insure successful operation.

THE MEDICAL PROTECTIVE COMPANY Booth 97
Fort Wayne, Indiana

With exceptional proficiency in defense, so essential to the Doctor's protection today, THE MEDICAL PROTECTIVE COMPANY offers unexcelled coverage in any claim or suit for damages based on professional services rendered or which should have been rendered. Its experience from the successful handling of 88,000 claims and suits during 66 years of Professional Protection Exclusively is unparalleled in the professional liability field.

MMC PUBLISHING COMPANY Booth 98
San Francisco

MMC PUBLISHING Co., publishers of medical office and financial forms, invites you to examine our modern and simple methods of controlling and organizing your financial affairs.

Our representatives will be available to discuss and demonstrate how our forms can help you to systematize your office in the following necessary areas of financial control:

1. Accounts Receivable and Billing
2. Accounts Payable
3. Selection and Hiring
4. Personal Financial Control

MERCK SHARP & DOHME Booth 38
West Point, Pennsylvania

The theme of the MERCK SHARP & DOHME exhibit is "SERVICE TO MEDICINE." One phase features the details of the MERCK SHARP & DOHME Postgraduate Program. Another feature includes information on teaching films for use by the profession and, also, lay films that can be utilized to portray the story of medicine to the lay public. The exhibit is concluded with a display of finger-tip files on selected MERCK SHARP & DOHME products.

MILEX-FERTILEX CO. Booth 31
Los Angeles

Ask for your sample copy: *Personal Understanding of Marriage*, by Dr. Robert Rutherford. This is latest of *Doctor-to-Patient* books. Five additional titles available.

MISSION PHARMACAL CO. Booth 65
San Antonio, Texas

MISSION PHARMACAL COMPANY has on display a new antacid tablet, EQUILET. EQUILET features very fast action with high capacity and exceptional flavor appeal. Also on display are Mission's old favorites: FOSFREE, FETAMIN, PRULET, SUPAC-B, HOMAPIN and a new formula IROMIN-G.

NEELY SALES DIVISION Booth 48
Hewlett-Packard Company
North Hollywood

BERKELEY MEDICAL INSTRUMENTS Multi-Purpose Instrument; MECHROLAB 202 Dual-Channel Clot-Timer; SANBORN Model 500 Viso-Cardiette; and SANBORN Model 780A Viso-Monitor for Intensive Care Unit.

THE NETTLESHIP COMPANY OF LOS ANGELES Booth 62
Los Angeles

Administrators of PROFESSIONAL LIABILITY, GROUP ACCIDENT AND SICKNESS, and LIFE INSURANCE PROGRAMS for County Medical Associations and Trusts in California.

Qualified representatives available to discuss problems pertaining to hospital or individual professional liability coverage, accident and sickness, life, or other types of insurance.

Literature, which will assist in the prevention of claims and various forms to be used to protect, as far as possible, against malpractice claims.

NEUTROGENA CORP. Booth 88
Santa Monica

NEUTROGENA SOAP is a mild, transparent, ethanalamine base soap and contains no free alkali. It is not a detergent nor is it medicated; yet so different it was recently granted a U.S. patent (No. 2,820,768). NEUTROGENA is mild, not drying and not irritating. It is well tolerated in cases of common dermatitis, eczema, acne and other common skin problems . . . especially where washing with soap is contraindicated.

ORGANON INC. Booth 8
West Orange, New Jersey

MAXIBOLIN® (ethylestrenol) a new oral anabolic agent. HEXADROL® (dexamethasone) one of the newer corticosteroids.

ORTHO PHARMACEUTICAL CORPORATION Booth 64
Raritan, New Jersey

Welcome to Booth No. 64 where ORTHO® is proud to present the most complete line of medically accepted products for the control of conception. Also on display is our well-known line of therapeutic products.

Representatives on hand will be happy to discuss all of our products with you and answer any questions which you may have concerning their use and application.

PACIFIC TELEPHONE Booths 15-16
San Francisco

Telephone Communication Services—Tailored to the needs of the Medical profession.

PARKE, DAVIS & COMPANY Booth 39
Detroit, Michigan

Medical service members of our staff will be in attendance at our booth to discuss important PARKE-DAVIS specialties which will be on display.

PASADENA RESEARCH LABORATORIES, INC. Booth 30
Pasadena

PASADENA RESEARCH LABORATORIES is pleased to again be able to greet our many friends and to make new ones among the membership of the California Medical Association. We will be featuring three products of interest to the profession from among our long line of injectable and oral medication.

PFIZER LABORATORIES Booth 77
New York, New York

Professional Service Representatives from PFIZER LABORATORIES will be pleased to have you in attendance at their booth to discuss the latest products of PFIZER research.

PHILIPS ROXANE LABORATORIES Booth 89
Columbus, Ohio

PHILIPS ROXANE LABORATORIES extends a cordial invitation to visit Booth No. 89. Our representatives will be pleased to discuss our MEASLES VIRUS VACCINE, LIVE, ATTENUATED as well as other important products of our research including our non-contraceptive retro-progesterone, DUPHASTON (dydrogesterone).

PITCHER ELECTRONICS, INC. Booth 19
Brea

SIEMENS, The World's Finest Medical Equipment, will be featured. Factory representatives from the SIEMENS COMPANY will be present to answer your questions.

PITMAN-MOORE DIVISION Booth 79
of The Dow Chemical Co.
Indianapolis, Indiana

FREDERICK POST CO. Booth 6
San Francisco

FREDERICK POST T-12 Heat Diazo Copying Machine for copying translucent or semi-translucent originals up to 12" wide by any length. The T-12 Developer copies by heat without the use of chemicals.

PROCTER & GAMBLE COMPANY Booths 45 & 46
Cincinnati, Ohio

IVORY SOAP (PROCTER & GAMBLE) offers a series of time-saving leaflet pads for doctors, each pad containing fifty identical tear-out sheets. These sheets, which may be given to patients, contain routine instructions covering general home care. There are also samples of other free, helpful material prepared especially for physicians.

PROFESSIONAL PHARMACEUTICAL PRODUCTS Booth 11
Cupertino

SO-FLO, tablets, drops, chewable Vitamins, Vitamin Drops. These products are NIH standards containing sodium fluoride for oral ingestion.

NATA-FLUOR capsules. A prenatal supplement with sodium fluoride.

MAGMACEL, an antacid containing aluminum hydroxide and magnesium hydroxide as a gel.

FUMERON-C, a long acting ferrous fumarate and ascorbic acid.

LINADE, decongestants for over the counter sale.

RIKER LABORATORIES Booth 74
Northridge

Representatives of RIKER LABORATORIES, INC. will be glad to supply you with complete information concerning our products which are available to the medical profession. Please feel free to request answers to any questions you may have. We will be looking forward to your visiting our booth.

BITTER COMPANY INC. Booth 10
Rochester, New York

A. H. ROBINS COMPANY, INC. Booth 108
Richmond, Virginia

Welcome to the Convention, Doctor, from the A. H. ROBINS COMPANY.

We hope you can stop at our display for a moment. The representatives there will be happy to answer any questions you may have about our products and explain their advantages.

ROCHE LABORATORIES Booth 110
Nutley, New Jersey

LIBRIUM (chlordiazepoxide HCl) is a unique and versatile therapeutic agent which is virtually specific for the relief of tension.

J. B. ROERIG & COMPANY Booth 40
New York, New York

J. B. ROERIG AND COMPANY will welcome members of the medical profession at the Company's exhibit of leading specialty products. Representatives will be in attendance to answer any questions you may have. Roerig recently introduced a number of new products which representatives at the exhibit will be pleased to discuss with you.

SANDOZ PHARMACEUTICALS Booth 80
Honover, New Jersey

SANDOZ PHARMACEUTICALS cordially invites you to visit our display at Booth No. 80, where we are featuring **MEL-LARIL**, **SANSERT**, **CAFERGOT P-B**, **FIORINAL** and **FIORINAL** with codeine.

Any of our representatives in attendance, will gladly answer questions about these and other SANDOZ products.

W. B. SAUNDERS COMPANY Booth 41
Philadelphia, Pennsylvania

New SAUNDERS books of special interest include: *Current Therapy 1965*; Curran: *The Doctor as a Witness*; Gartland: *Fundamentals of Orthopaedics*; Kelikian: *The Foot*; Nelson: *Pediatrics*; Bates and Christie: *Respiratory Function in Disease*; and Edwards, Carey, Neufeld and Lester: *Congenital Heart Disease*.

SCHERING CORPORATION Booth 72
Bloomfield, New Jersey

SCHERING invites physicians to visit their booth for the latest information on our new products.

G. D. SEARLE & CO. Booth 2
Chicago, Illinois

You are cordially invited to visit the SEARLE booth where our representatives will be happy to answer any questions regarding SEARLE Products of Research.

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Detroit, Michigan

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SIEMENS MEDICAL OF AMERICA INC. Booth 20
Hinsdale, Illinois

SIEMENS MEDICAL will display the complete SIEMENS line. Different new developments for therapy and diagnosis will be shown and our representatives will be on hand to answer any questions you may have.

A few minutes at our booth may prove to be of great value to you.

SMITH KLINE & FRENCH LABORATORIES Booth 50
Philadelphia, Pennsylvania

May we discuss the use of SK&F products in your specialty? Our representatives are on duty to answer specific questions you may have. Also, information on SK&F's spectrum of services is available on request.

SMITH, MILLER & PATCH, INC. Booth 96
New York, New York

SMITH, MILLER & PATCH, INC. cordially invites you to visit their exhibit. Our representatives will be pleased to discuss the latest advances in therapy. Featured at our exhibit will be: **CEPHALGESIC**, a new product for the treatment of headache; **LIPOFLAVONOID**, **LIPOTRIAD**, **VITRON-C** and **KONDREMUL**. Also featured will be a range of topical ophthalmic preparations including **VASOCON-A**, an anti-histamine/decongestant.

E. R. SQUIBB & SONS Booth 18
New York, New York

E. R. SQUIBB & SONS has long been a leader in development of new therapeutic agents for prevention and treatment of disease. The results of our diligent research are available to the Medical Profession in new products or improvements in products already marketed.

At Booth No. 18, we will be pleased to present up-to-date information on these advances for your consideration.

J. W. STACEY, INC. Booth 111
Palo Alto

STACEY's, the largest distributor of medical books in America, will be in attendance with a large display featuring the latest important books from all medical publishers, plus up-to-the-minute information about forthcoming books in each specialty. If you have not received your free copy of *Medical Books in Print*, be sure to stop at Booth No. 111—STACEY's will have a limited supply on hand.

STAYNER CORPORATION Booth 93
Berkeley

STAYNER CORPORATION cordially invites you to visit its exhibit where representatives will gladly answer questions regarding any of the 170 pharmaceutical products it manufactures.

Principal products to be featured will be:

CODASA CAPSULES, three different strengths of codeine and aspirin for relief of pain of varying degrees of severity. Contains no phenacetin or stimulating caffeine.

STAYNER Placebo Capsules, for use in barbiturate withdrawal therapy.

THE STUART COMPANY Booths 70 & 71
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A cordial invitation is extended to all members and guests attending this meeting to visit the STUART COMPANY booth. Specially trained representatives will be in attendance to

answer your questions on new products, developed in our modern laboratories, which have particular interest for the medical profession. Products featured are STUART PRENATAL and STUART PRENATAL-F, DIALOSE and DIALOSE PLUS, MULVIDREN JUNIOR and MULVIDREN-F, MYLANTA Liquid and MYLANTA Tablets.

SYNTEX LABORATORIES, INC. Booth 69
Palo Alto

NORINYL® (norethindrone 2.0 mg with mestranol 0.1 mg) Tablets, an original steroid from SYNTEX LABORATORIES, will be featured at Booth No. 69. NORINYL 2 mg super-sedes barrier methods of contraception.

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Booth 85

SYNALAR® (fluocinolone acetonide), the topical corticosteroid designed to meet specific dermatologic needs, will be featured at Booth No. 85.

SYNALAR has set a new standard of success in the treatment of a wide range of inflammatory dermatoses.

A warm invitation is extended to all physicians attending this meeting to visit our booth and discuss the latest developments from SYNTEX research.

TAR GARD COMPANY Booth 83
San Francisco

TAR GARD cigarette holder filters and following accessories: TAR GARD colored Fashion Tips, TAR GARD Deluxe Fashion Gift Pack, and TAR GARD Cleaning Kit.

THERMO-FAX SALES INCORPORATED Booth 24
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TRU-EZE MANUFACTURING CO., INC. Booth 28
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THE UPJOHN COMPANY Booths 42 & 43
Kalamazoo, Michigan

Professional representatives of THE UPJOHN COMPANY are eager to contribute to the success of your meeting. We are here to discuss with you products of UPJOHN research that are designed to assist you in the practice of your profession. We solicit your inquiries and comments.

U.S. VITAMIN & PHARMACEUTICAL CORP. Booth 5
New York, New York

The U.S. VITAMIN & PHARMACEUTICAL CORPORATION cordially invites you to visit their exhibit where DBI/DBI-TD will be on display, as well as other leading pharmaceutical specialties and nutritional products.

Professional service representatives will be in attendance to welcome you and to be of help in answering any inquiries pertaining to the products on display, as well as any of their other products.

WALLACE LABORATORIES Booth 73
Cranbury, New Jersey

We invite you to visit our booth where our representatives in attendance will be pleased to furnish information regarding WALLACE products and your related medical questions to assist you in your practice.

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WARNER-CHILCOTT LABORATORIES Booth 55
Morris Plains, New Jersey

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WTS-PHARMACRAFT Booth 103
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cautions and side effects:

Lomotil is an exempt narcotic; its abuse liability is low and comparable to that of codeine. Recommended dosages should not be exceeded. Side effects are relatively uncommon but among those reported are gastrointestinal irritation, sedation, dizziness, cutaneous manifestations, restlessness and insomnia. Lomotil should be used with caution in patients with impaired liver function and in patients taking addicting drugs or barbiturates.

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Intestinal Changes Found in Acute Viral Hepatitis

(Continued from Page 32)

ence of atypical lymphocytes, white blood cells arising from the lymph glands.

The findings led the physicians to conclude that infectious mononucleosis is basically an infiltrative disease in which atypical or increased numbers of lymphocytes invade and damage organs, whereas acute viral hepatitis is a disease in which the causal agent invades and destroys the component cells of organs such as the liver, intestine, and kidney.

Similar studies in patients with German measles, chicken pox and mumps revealed little change in the intestine.

Handicapped Infants Helped by Top Care

Some infants born with hydrocephalus and a congenitally deformed spinal cord have the potential for a reasonably satisfactory existence if given the most advanced form of care.

A report on 50 infants so handicapped from the Vanderbilt Birth Defects Clinical Study Center, Vanderbilt University School of Medicine, Nashville, Tenn., appeared in the January 4 *Journal of the American Medical Association*.

These patients receive intensive treatment by a team which includes a neurosurgeon, pediatrician, orthopedist, urologist and ancillary aid, according to the *Journal* article.

Hydrocephalus, in which cerebrospinal fluid is prevented from escaping normally into the blood stream, can be relieved by implanting a tube in the brain cavity to shunt the fluid from the brain to a vein near the heart.

The spinal cord defect, termed myelomeningocele, is a bulge in part of the cord and its covering membrane due to defective closure of the vertebrae. The condition can be corrected by closing the defect in the vertebrae.

Regular developmental evaluation is provided. Social service, detailed instructions in home care, physical therapy, speech and hearing evaluation, and other resources of the medical center also are provided.

Of the 50 infants evaluated on their first birthday, 20 died, most during the first 30 days of life, according to the report.

Seventeen of the 50, or 34 per cent, were rated "competitive individuals." The results were termed "encouraging, so far."

Detailed information about the pregnancy and its complications, drugs, x-rays, exposure to other radiation, familial incidence, reproductive history, and parental age has not provided any "good clues" as to the cause of these birth defects, it was pointed out.

Authors of the report were Robert E. Merrill, M.D., Thomas McCutchen, M.D., William F. Meacham, M.D., and Theresa Carter.

REFERENCES AND REVIEWS

SYSTEMIC EFFECTS IN DYSTROPHIA MYOTONICA—F. I. Lee and D. T. D. Hughes (London Hosp., London). *Brain*, 87:521-536 (pt. 3) 1964.

Nineteen patients, five men and 14 women, suffering from dystrophia myotonica were studied. Chest infections are common, due to weak coughing and possibly to esophageal spillover. Lung function tests show impairment of sustained ventilations. Abnormalities of cardiac conduction and rhythm are common, and Stokes-Adams attacks may be troublesome. Hypotension is also a problem. There is no evidence of a consistent thyroid abnormality in dystrophia myotonica. There is no increase in the incidence of true diabetes mellitus. However, abnormalities of glucose metabolism may be relatively common due to impaired muscular metabolism.

* * *

PROGNOSIS OF VITREOUS HEMORRHAGES—F. Balmer (Universitäts-Augenklinik, Basel, Switzerland). *Ophthalmologica*, 147:425-447 (No. 6) 1964.

The author devised and used a method of evaluating the subjective absorption time of the blood and a diagram for determining the bleeding intensity in 105 patients with vitreous body hemorrhage. The tests were made to find out whether prognosis of the hemorrhage depends on the extent of the hemorrhage, on recurrences, on the primary disease (hypertension, periphlebitis, diabetes, and trauma) or on the patient's age. The study showed that the blood absorption time depends mainly on the extent of the hem-

orrhage. The patient's age and the primary cause of the vitreous hemorrhage have an indirect influence on the blood absorption time, since in advanced age and in certain diseases (hypertension, diabetes) particularly severe hemorrhages can occur. In older patients, a senile process could also be responsible for the vitreous hemorrhage in which the absence of the "vitreous body pressure" promotes the spread of hemorrhages into the viscera of the eyeball.

* * *

STUDIES ON NEURAMINIC ACID—J. P. Green (Yale University School of Medicine, New Haven, Conn.), R. P. Atwood, and D. X. Freedman. *Arch. Gen. Psychiat.*, 12:90 (Jan.) 1965.

In the cerebrospinal fluid, the apparent levels of neuraminic acid, as indicated by measurement with Bial's orcinol reagent, were about three times those obtained with the thiobarbituric acid method. The levels of orcinol-reacting material in cerebrospinal fluid from schizophrenic patients showed no difference in their reactivity with Bial's orcinol reagent.

* * *

ANGITIS AND AMYLOIDOSIS IN CHEMICAL CARCINOGENESIS—J. S. Campbell (Ottawa University, Ottawa, Canada) and Y. H. Yang. *Arch. Path.*, 79:14 (Jan.) 1965.

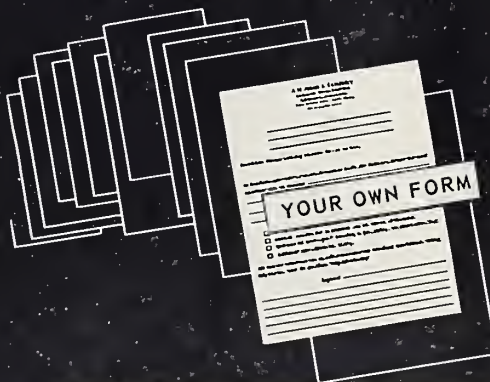
In studying the outcome in full-life spans of induced epithelial dysplasia of the vagina and the cervix, necrotizing angitis in the genital tracts and viscera and systemic amyloidosis occurred in some mice which received small intra-vaginal dosages of 20-methylcholanthrene in acetone or acetone alone. Rarely reported in carcinogen-treated mice, these lesions may be "antigenic by-products," in which carcinogen solutions act as haptens, and may disqualify acetone as a vehicle for long-term studies in carcinogenesis.

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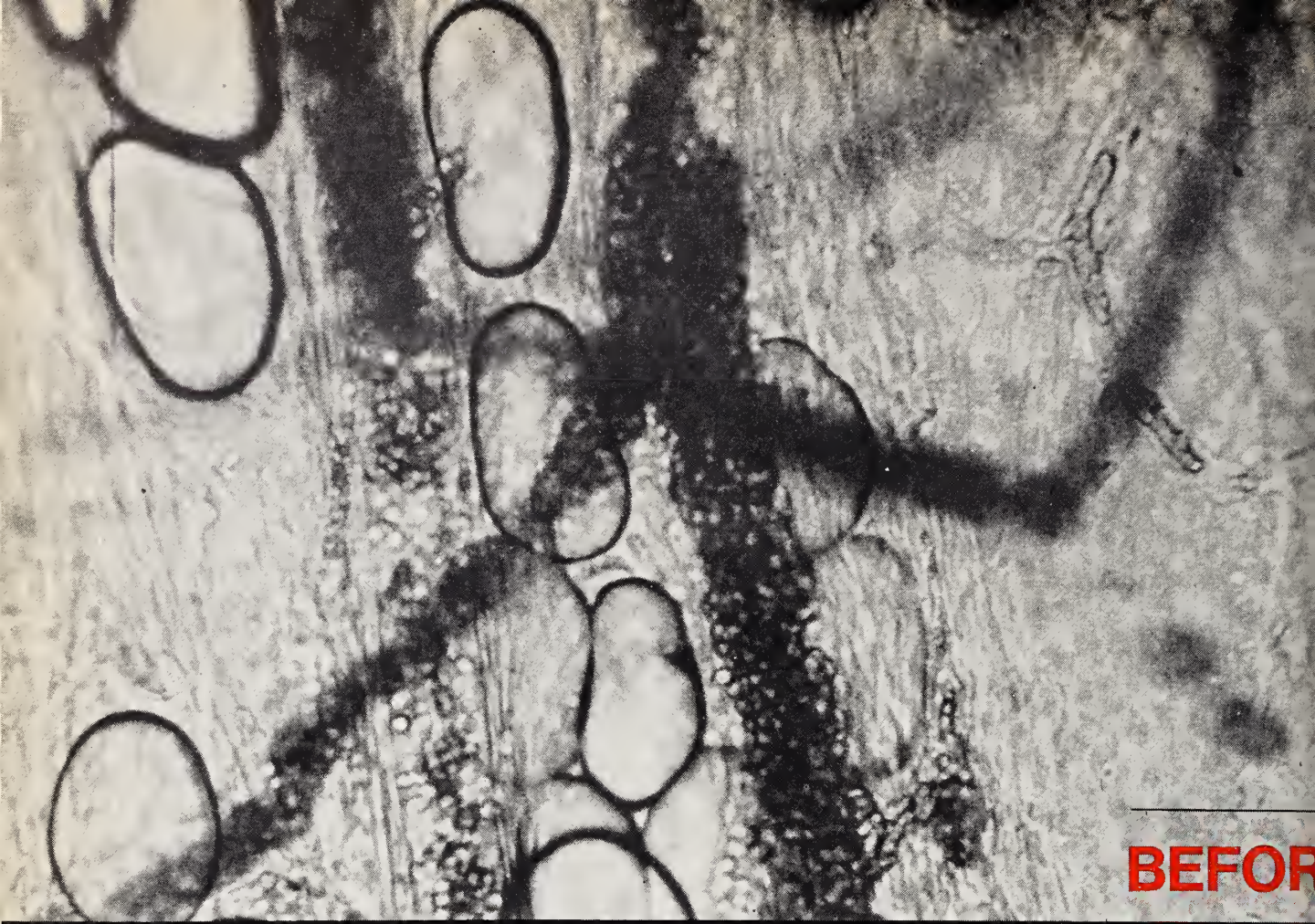
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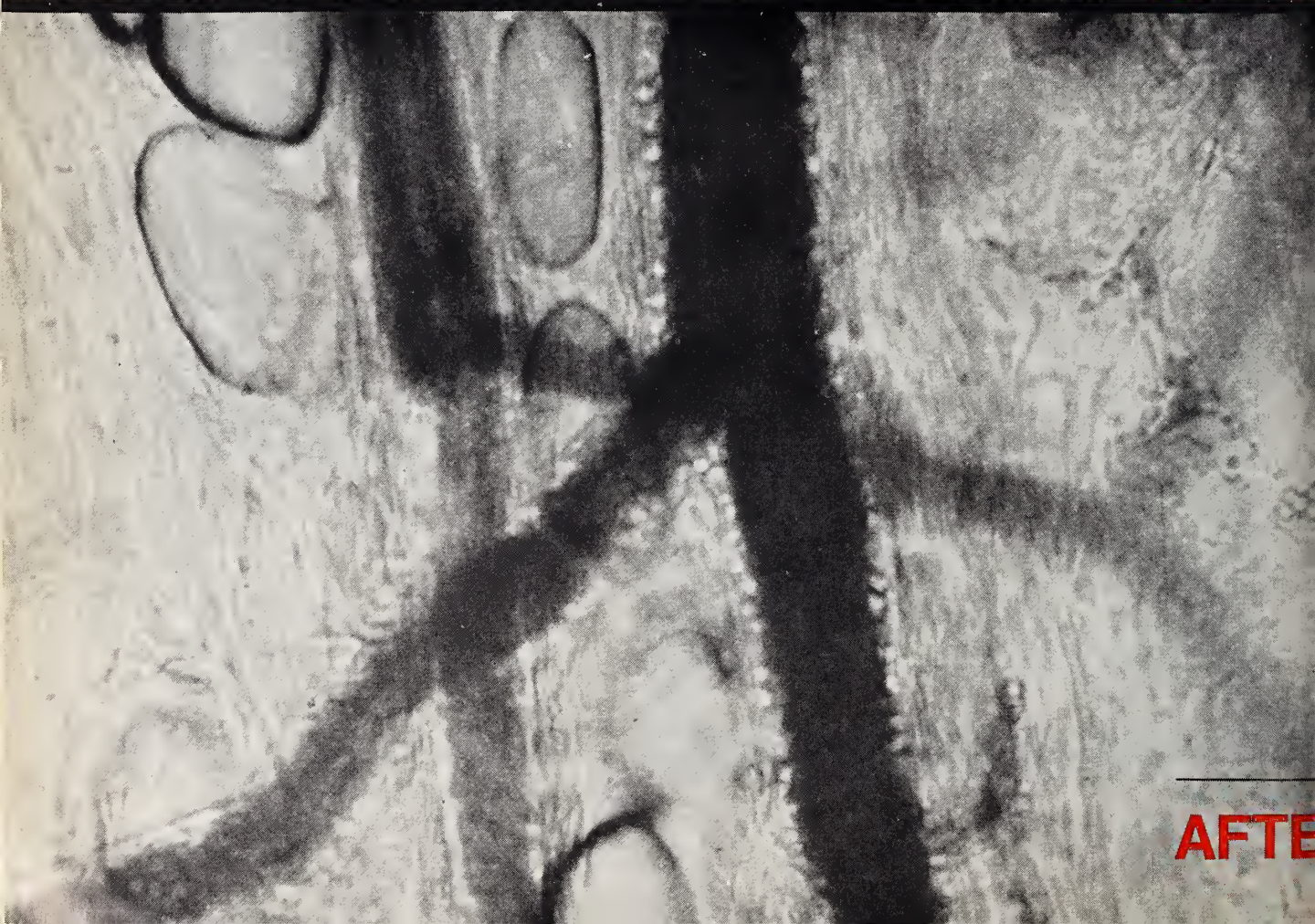
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BOOKS RECEIVED

(Continued from Page 22)

George S. Klein, Ph.D.; Bruno Klopfer, Ph.D.; Rollo May, Ph.D.; James G. Miller, M.D., Ph.D.; and David Wechsler, Ph.D. Grune & Stratton, New York, 1964. 252 pages, \$8.75.

PROGRESS IN HEMATOLOGY—Volume IV—Edited by Carl V. Moore, M.D., and Elmer B. Brown, M.D.; with 21 contributors. Grune & Stratton, Inc., New York and London, 1964. 309 pages, \$13.75.

PROGRESS IN NEUROLOGY AND PSYCHIATRY—An Annual Review—Volume XIX—Edited by E. A. Spiegel, M.D., Professor and Head of the Department of Experimental Neurology, Temple University School of Medicine, Philadelphia. Grune & Stratton, Inc., New York, 1964. 682 pages, \$14.75.

RESPIRATORY FUNCTION IN DISEASE—An Introduction to the Integrated Study of the Lung—David V. Bates, M.D. (Cantab.), M.R.C.P. (London), Associate Professor of Medicine, McGill University; Director, Respiratory Division, Joint Cardiorespiratory Service, Royal Victoria Hospital and Montreal Children's Hospital, and Ronald V. Christie, M.D. (Edinburgh), M.Sc. (McGill), D.Sc. (London), Sc.D. (Dublin), F.A.C.P., F.R.C.P. (London), F.R.C.P.(C), Professor and Chairman of the De-

partment of Medicine, McGill University; Physician-in-Chief, Royal Victoria Hospital. W. B. Saunders Company, Philadelphia and London, 1964. 566 pages, \$15.50.

SCINTILLATION SCANNING IN CLINICAL MEDICINE—Based on a Symposium Sponsored by the Department of Radiology of the Bowman Gray School of Medicine—James L. Quinn, III, M.D., Editor; Assistant Professor of Radiology, Northwestern University School of Medicine; Director of Nuclear Medicine, Chicago Wesley Memorial Hospital. W. B. Saunders Company, Philadelphia and London, 1964. 278 pages, \$11.50.

SENSITIVITY CHEST DISEASES—Edited by M. Coleman Harris, M.D., F.A.C.P., F.C.C.P., Attending Physician in Medicine (Allergy), Mary's Help Hospital, San Francisco, Calif.; formerly Associate Professor Internal Medicine (Allergy), Loma Linda University School of Medicine, Los Angeles, Calif.; and Norman Shure, M.D., M.S. (Path.), F.A.C.P., Associate Clinical Professor Medicine (Allergy), Loma Linda University School of Medicine, Los Angeles, Calif. F. A. Davis Company, Philadelphia, Pa., 1964. 359 pages, \$17.50.

SURGERY OF THE BREAST—Louis H. Jorstad, M.D., F.A.C.S., F.I.C.S., Consulting Surgeon, St. Luke's Hospital, Missouri Baptist Hospital, and Frisco Employees' Hospital Association, St. Louis, Mo.; Consulting Surgeon, Ellis Fischel State Cancer Hospital, Columbia, Mo. With the collaboration of Meredith Jorstad Payne, M.D., F.A.C.S., Assistant, Department of Surgery, Washington University School of Medicine, St. Louis, Mo. The C. V. Mosby Company, St. Louis, 1964. 220 pages, \$15.00.

TRANSFERENCE—Its Structure and Function in Psychoanalytic Therapy—Second Edition—Benjamin Wolstein, Ph.D. Introduction, Clara Thompson. Grune & Stratton, Inc., New York, 1964. 272 pages, \$7.75.

TROPICAL DISEASES IN TEMPERATE CLIMATES—Kevin M. Cahill, M.D., D.T.M. & H. (Lond.), Head, Department of Epidemiology; Director of Tropical Medicine, U.S. Naval Medical Research Unit 3, Egypt and The Sudan. J. B. Lippincott Company, Philadelphia, 1964. 225 pages, \$9.50.

PHYSICIAN PLACEMENT SERVICE

The Californio Medical Association offers free placement assistance through the Physician Placement Service, 693 Sutter Street, San Francisco, California 94102. This service is for the use of all physicians seeking practice opportunities in California and for C.M.A. members who are seeking an assistant or associate. A bulletin is published every other month.

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Heavy Smoking May Stimulate Blockage of Small Arteries

Heavy cigarette smoking may be implicated in the blockage and ultimate destruction of smaller blood vessels, particularly in the legs, a New York surgeon said recently.

The possible connection between smoking habits and a condition known as peripheral atherosclerotic occlusive disease, was reported by Jere W. Lord, Jr., M.D., in the January 18 *Journal of the American Medical Association*.

This condition—in essence atherosclerosis of the arteries of the skin and outer muscle layers—is caused by accumulations of fatty-like deposits

known as plaque on the artery walls. Eventually the plaque may entirely block the flow of blood.

Since circulation is by nature the least efficient in the legs, it is here that atherosclerosis of the peripheral blood vessels is more likely to occur.

Dr. Lord, of the New York University Post-Graduate Medical School, said a study of 100 consecutive patients operated on for atherosclerotic occlusion of the peripheral blood vessels showed that 94 were heavy cigarette smokers. Of the remaining patients, four were classified as casual smokers and two were nonsmokers.

"Heavy smokers" Dr. Lord defined as those who consumed a pack or more of cigarettes daily for at least 20 years. Patients who smoked less than a pack a day or who had been smoking for less than 20 years he classified as "casual smokers."

The study was conducted among non-diabetic patients between the ages of 40 and 70. Diabetics and persons over 70 were excluded, he explained, because of the possibility that they are more susceptible to plaque formations.

Four pathways exist by which heavy cigarette smoking may contribute to atherosclerotic plaque, Dr. Lord said.

1. Tobacco may cause an allergic-type reaction in some individuals, with the arterial walls as the "target."

2. Inhaled tobacco smoke, by some as yet unexplained mechanism, is known to increase the fatty acid content of the blood. The significance of this is that fatty acids are a primary ingredient of plaque.

3. Another possibility is that inhaled tobacco smoke has the ability to upset the clotting properties of the blood. There is some evidence that prolonged heavy smoking may contribute to the formation of small clots which in turn serve as the nucleus of plaque formation.

4. It is known that smoking stimulates the heart output increasing blood velocity. This stepped up blood flow, in turn, reduces the pressure exerted on arterial walls, creating a condition more favorable to plaque formation.

Some plaque formation is to be expected in older persons, Dr. Lord said. "As long as blood flows it seems inevitable that atherosclerotic lesions, not necessarily of clinical significance, will appear eventually in every human who lives into the ninth and tenth decades."

The findings of the study, however, point out that in some individuals heavy cigarette smoking may accelerate the occurrence of atherosclerotic lesions, he said. Thus obstructive arterial disease "appears at an earlier age and to a more severe degree."

In any event, Dr. Lord concluded, the study tends to make it clear that "in the non-diabetic non-smoker, atherosclerotic peripheral arterial occlusive disease is an unusual finding under the age of 70 years."

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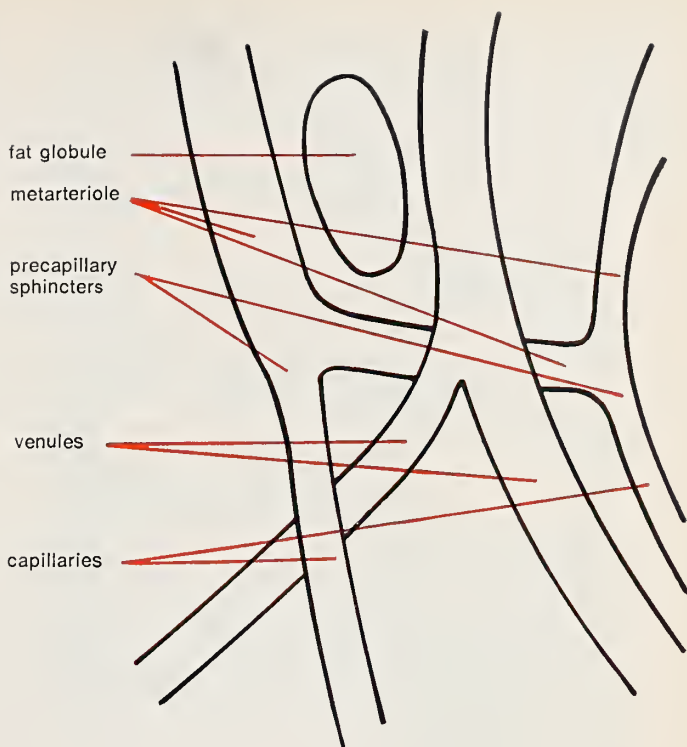
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According to Sewell: "... the factor most likely to have direct influence on development of a capillary into collateral artery is the velocity of movement of blood through a capillary that connects to arterial beds."⁵

Side effects: Negligible but, occasionally, transient headache may occur.

Precautions: Exercise caution in glaucoma and with dosage forms containing phenobarbital, which may be habit forming.

Full information is available on request.

References: 1. Goodman, L. S., and Gilman, A.: *The Pharmacological Basis of Therapeutics*, ed. 2, New York, The Macmillan Company, 1955, p. 731. 2. Schumer, W.; Lee, D. K., and Jones, B.: *The physiological effect of vasodilators on the omentum of the dog in oligemic shock*, *Angiology*, in press. 3. Data on file in the Medical Department of Warner-Chilcott Laboratories. 4. Lumb, G. D., and Hardy, L. B.: *Circulation* (Pt. II, *Cardiovascular Surgery*) 27:717, 1963. 5. Sewell, W. H.: *J.A.M.A.* 186:224, 1963.

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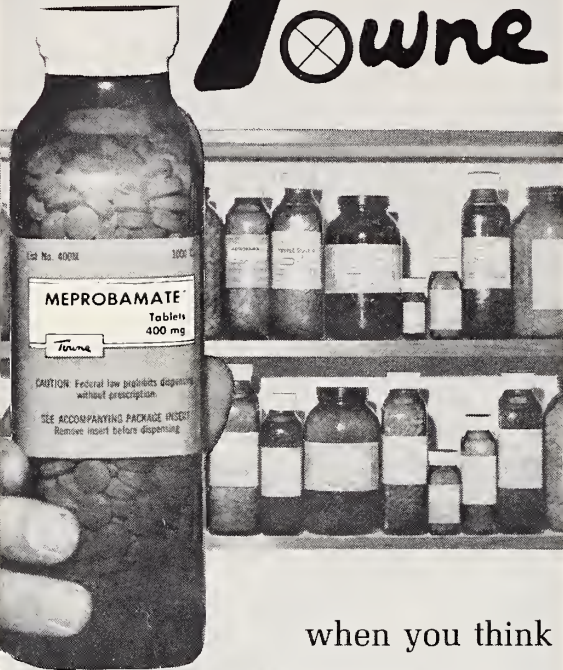
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Pesticide Poisonings Have Been Found Caused By Unusual Circumstances

An infrequent combination of factors was blamed for two poisoning episodes in Washington state caused by drifting insecticide from crop-dusting planes.

A report in the January 4 *Journal of the American Medical Association* on the 1963 outbreaks was termed "the first scientifically acceptable evidence that the drift of the newer organic phosphorus insecticides has produced poisoning clearly recognizable" in residents or bystanders. This type of poisoning has been seen frequently in occupationally exposed persons.

The outbreaks near Toppenish and Wenatchee followed the dusting of crops with tetraethyl pyrophosphate (TEPP), formulated and applied in accordance with practices current for at least 16 years, according to Drs. Griffith E. Quinby, Wenatchee, and Glenn M. Doornink, Wapato, Wash.

The poisoning of 15 persons near Toppenish and two near Wenatchee was brief, mild and limited to the lungs. However, 15 cattle suffered a generalized illness in the Toppenish incident and two died, while one heifer was afflicted at Wenatchee.

It appears that an infrequent combination of several factors was required to trap dust-laden air in pockets for periods long enough to cause persons in the area of drift to breathe enough TEPP to make them short of breath, the predominant symptom, the physicians said.

These factors were: thermal inversion (in which upper air is warmer than lower air) and consequent static air conditions for longer than an hour over a considerable area; topography of land causing interference with even slow movement of dust-laden air; and tall-growing crops with dense foliage constituting walls of vegetation located on such terrain.

All these factors were present in the Toppenish and Wenatchee outbreaks and also at the time the two veterinarian-confirmed cattle outbreaks in Yakima Valley, the authors pointed out.

Available facts do not explain why cattle developed a generalized poisoning while human beings and some animals—cats, geese, chickens—did not, they added. However, they said, the buffering action of the blood in combining with absorbed TEPP may differ between cattle and man.

"At present, increased alertness on the part of industry, agricultural agencies, departments of public health, and the medical profession may be all that is required to prevent frequent or more serious recurrence of such episodes," the physicians concluded. "Whenever clouds of TEPP dust tend to concentrate or remain static longer than usual, people should be urged to remove themselves and their cattle until the cloud has disappeared."



Meningococcal Infections

Fort Ord and California

JOHN W. BROWN, M.D., AND PHILIP K. CONDIT, M.D., *Berkeley*

■ *Meningococcal meningitis began to occur in outbreak proportions during 1962 at Fort Ord, Monterey County. This increase in incidence continued until basic training was stopped at that post late in 1964. Most of the cases were among basic trainees in the first eight weeks of training, although other personnel had close contacts with trainees.*

All of the meningococci isolated were serotype B and about 50 per cent of the military patients with meningitis had sulfadiazine resistant strains. At this time, approximately 20 per cent of the civilian male population of military age are carriers of the organism before going into service. By eight weeks of training nearly 90 per cent of the men in some barracks carried the organism. Yet there was no correlation between the carrier rate and the occurrence of cases between barracks.

A feature of this outbreak was that a high proportion of healthy males (20 per cent) were carriers of type B meningococci. This finding reflects the carrier rate in the general civilian population of the same age. The organism is apparently so widely disseminated throughout the population that it is impossible to decide with certainty the source of the organism infecting any particular person. It is unlikely that military groups pose extraordinary hazard to civilians. During 1964, only one case of meningococcal meningitis was found among the civilians of Monterey County while there were 89 in military personnel and 10 among the civilian dependents of military personnel.

At present there is an increasing rate of meningococcal meningitis among the total population of California, suggesting that this area is on the upward swing in the cyclical occurrence of the disease.

THE INCIDENCE of meningococcal meningitis in California has shown a gradual increase since 1959, the most recent low point in the cyclical occurrence of the disease. There were 190 cases reported in

1959 and 553 cases in 1964, the case rate rising from 1.4 per 100,000 in 1959 to 3.0 in 1964.

In recent months considerable attention has been focused on the occurrence of meningococcal meningitis at Fort Ord, a United States Army training center in Monterey County, California. This army post has had cases of meningitis at all seasons dur-

From the Division of Preventive Medical Services, California State Department of Public Health.
Submitted January 8, 1965.

ing the past three years, the greatest number of cases having occurred during the summer and fall of 1964. The continuous occurrence of new cases of meningitis at this training center over an extended period has created public awareness of the hazard of this disease and led to considerable publicity and consequent anxiety in the public mind.

The purpose of this report is to summarize the situation at Fort Ord with attention to its impact on the civilian population. The public news media have been assiduous in their coverage of the outbreak at Fort Ord. *Epidemiologic Notes and California's Health*, both publications of the California State Department of Public Health, have kept local health officers aware of developments.^{1,2} This review includes the current reported incidence and recent trends in the occurrence of meningococcal meningitis for the State of California, which is the background against which the Fort Ord outbreak should be considered. The results of laboratory studies are mentioned. Details of these will be reported elsewhere.

TABLE 1.—*Meningococcal Infections at Fort Ord 1960-1964 Through November 18*

<div> <div>Combat Trainees</div> <div> <div> <div>Clinical Meningococcal Infections Without Meningitis</div> <div> <div>Meningitis</div> <div> <div>Cases</div> <div>Deaths</div> </div> </div> <div> <div>Military Dependents Meningitis</div> <div> <div>Cases*</div> <div>Deaths*</div> </div> </div> <div>Total Meningococcal Infections</div> </div> </div> </div>						
Year	Cases	Deaths	Cases	Cases*	Deaths*	Infections
1964†	89	12	4	10	2	103
1963	56	5	3	5	0	64
1962	36	0	0	2	0	38
1961	6	0	0	0	0	6
1960	2	0	0	0	0	2

*Includes 2 civilian cases (one fatal) who had close contact but were not dependents.

†Through November 18, 1964.

Prepared by Bureau of Communicable Diseases.

Fort Ord Cases, Military and Military Dependents

Data in Table 1 suggest that the present cycle of increased incidence of meningococcal meningitis at Fort Ord began between 1961-1962. There were two and six cases in 1960 and 1961 respectively. A significant increase to 38 cases occurred in 1962. There were 64 cases in 1963 and 103 in 1964. Chart 1 shows the number of cases by months. It also indicates illness in basic trainees, other military personnel, civilian military dependents, those cases which were fatal and those with meningococcal infections without meningitis or meningococemia. Fatalities first occurred in 1963 with a further increase in 1964. Table 2 shows the case rate per 100,000 total population each year in the period 1959-1964 by geographic area within the state of California. Most areas show a moderate or slight increase in case rate. In the central coast area, which includes Monterey and Fort Ord, there was a pronounced increase.

Most of the cases of meningitis at Fort Ord occurred in basic trainees in the first eight weeks of training. During 1963 and 1964 there was an increase in meningitis among those who had recently completed basic training. Only two cases occurred in men of the regular garrison. There was no meningitis in cadremen who were the instructors and otherwise helped in basic training. These men have close daily contact with the trainees and occupy the same barracks. None of the officers, including line commanders, physicians, dentists and nurses had a meningococcal infection. The officers had individual quarters and the cadremen had space separate from the trainees but in the same barracks.

The peak number of cases in a single month occurred in August 1964, but the outbreak continues to the present with nine cases in October and eight

TABLE 2.—*Meningococcal Meningitis Cases and Rates per 100,000 by Area, California, 1959, January 1-November 30, 1964*

Area	1959		1960		1961		1962		1963		1964	
	Cases	Case Rate	Cases	Case Rate	Cases	Case Rate	Cases	Case Rate	Cases	Case Rate	Cases	Case Rate
Central Coast*	6	1.6	6	1.6	20	5.2	46	11.5	55	13.3	103	23.8
Los Angeles	60	0.9	64	0.9	75	1.1	124	1.7	125	1.7	158	2.0
Mountain	1	0.3	8	2.6	3	1.0	1	0.3	2	0.6	5	1.5
North Coast	7	3.8	8	4.3	9	4.8	6	3.1	3	1.6	12	6.2
Sacramento Valley	9	1.2	12	1.5	8	1.0	17	2.0	12	1.3	14	1.5
San Diego	21	2.1	23	2.1	26	2.4	33	2.9	51	4.4	38	3.3
San Francisco Bay	41	1.2	46	1.3	63	1.7	63	1.6	93	2.3	108	2.6
San Joaquin Valley	19	1.4	24	1.7	21	1.4	26	1.7	23	1.5	36	2.3
South Central	6	1.8	3	0.8	1	0.2	7	1.6	12	2.5	8	1.6
Southeast	20	2.3	15	1.7	10	1.1	11	1.1	11	1.1	14	1.3
Total State	190	1.2	209	1.3	236	1.4	334	2.0	388	2.2	496	2.7

*Includes Monterey County and Fort Ord.

in November. Five of eight cases in trainees during November were among those who had completed basic training. All basic trainees had left Fort Ord by the end of November. In October there were three cases in dependents of military personnel. One of the patients was a civilian military dependent who was cared for on the post. The other two civilians were not near the post but had close contact with a healthy carrier from a basic training brigade at Fort Ord. One died. There are other instances in which individual civilians had meningococcal meningitis and indirect contact with the post could be traced but which are not listed because of the nature of the exposure and the multiple other opportunities for contact with meningococci elsewhere.

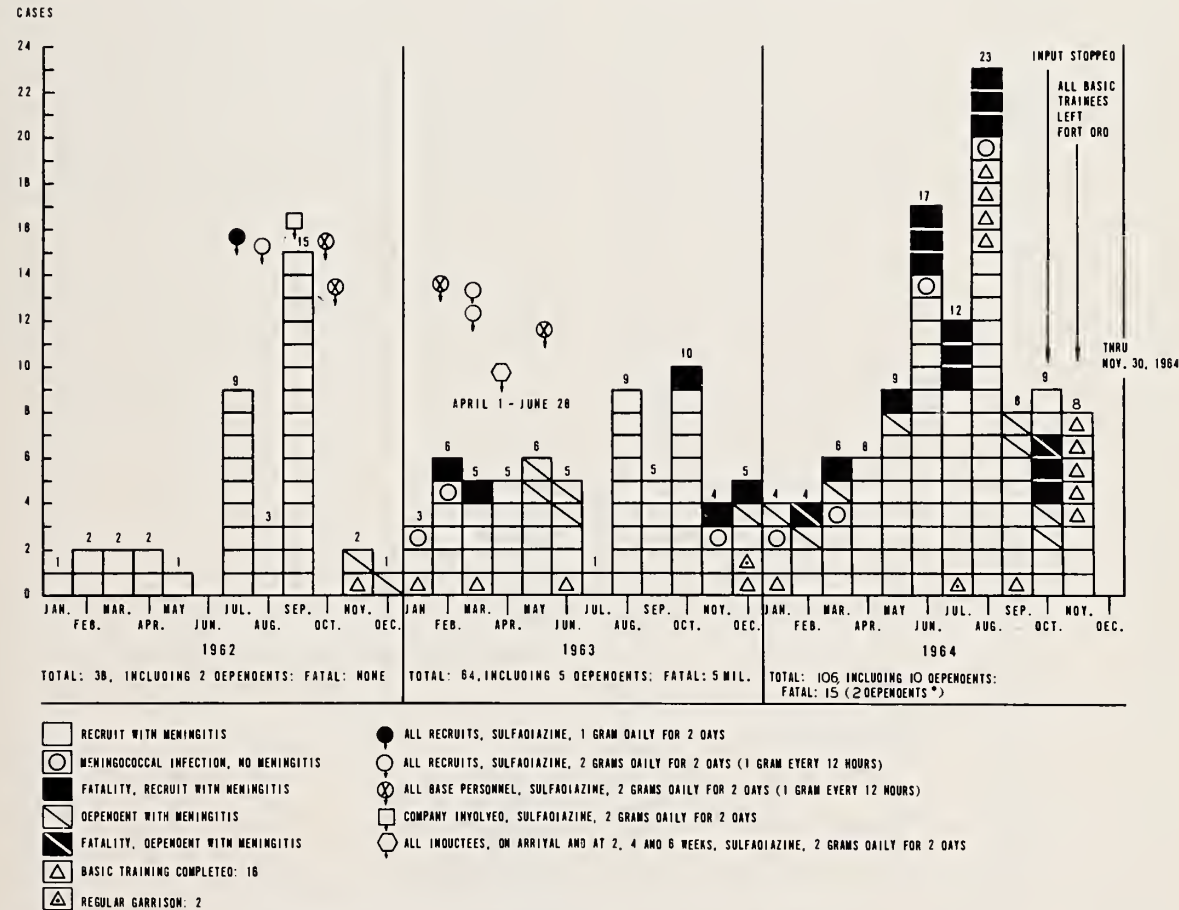
Clinical Features

The Fort Ord outbreak has been attended by several fulminating cases of meningococcemia, with shock and a confluent hemorrhagic eruption. The interval between the onset of illness and death has been as short as five hours, beginning with malaise,

sore throat, slight headache, one or two petechiae a little later, to the state of collapse with widespread confluent hemorrhages in the skin a few hours after the first petechiae appeared. Most of the deaths were in this group. The measures taken at the post to insure early diagnosis and early treatment no doubt have been important factors in the overall relatively favorable case fatality rate.

The case fatality rate for the three years was: 1962, zero; 1963, 8.2 per cent; and 1964 (to December 1) 13.3 per cent. The fatality rate for California as a whole was 19.1 per cent in 1962 and again in 1963 (Table 3). The Fort Ord case and fatality rates include the occasional recruit who developed meningitis while on furlough after finishing basic training and was put in hospital elsewhere. Often treatment was received at a later stage of the disease in such cases. Some of these were fatal. But every patient connected with trainees at or recently from Fort Ord is listed in the totals.

During 1964 there were 10 patients classified as military dependents. Two of these died. In several instances the contacts had throat cultures and the



* NUMBER INCLUDES 2 CIVILIANS, ONE OF WHOM DIED, WHO ARE NOT STRICTLY DEPENDENTS BUT WHO HAD CLOSE CONTACT TO A RECRUIT-CARRIER.

Chart 1.—Meningococcal Infections. Cases and Deaths, Fort Ord, California, January, 1962-November 30, 1964.

meningococci which were isolated were characterized. In none of the cases in dependents had the patient had contact with a patient who had meningitis. A typical example was the occurrence of meningitis in a 3½-year-old child of a member of the permanent garrison. Cultures revealed that the mother was

the carrier of the Type B strain of meningococcus similar to that of the child. The single culture of the father failed to reveal the organism.

For treatment, the soluble salt of penicillin G, given intramuscularly in divided doses of about 2 million units every two to three hours, or approximately 24 million units in 24 hours, seems to have been the most successful therapeutic measure. The most difficult current problem relates to the management of carriers and contacts by chemoprophylaxis.

Communicability

The Fort Ord outbreak demonstrates again that meningococcal meningitis is of low communicability. In ordinary circumstances the risk of acquiring this disease is minimal. It is obviously low even at Fort Ord. It is evident that there were literally thousands of contacts and opportunities for transfer of meningococci between individuals both civilian and military at Fort Ord. Yet there have been comparatively few cases of meningitis considering the high percentage of personnel whose throat culture was positive for serotype B meningococci. A tragic episode took place in October, 1964. A basic trainee on leave spent a day and evening with his fiancée. After his return to Fort Ord, fulminating meningococcal meningitis developed in the girl and she died. The trainee remained well. Type B meningococci were obtained by culture of both the man and his fiancée. The connection with the outbreak at Fort Ord

TABLE 3.—*Meningococcal Infections, Cases, Deaths and Rates, State of California, 1913-1964 Through November 18*

Year	No. of Cases	Rate per 100,000	No. of Deaths	Case Fatality Rate (Per Cent)
1913	67	2.4	49	73.1
1914	70	2.4	38	54.3
1915	46	1.5	22	47.8
1916	64	2.1	15	23.4
1917	133	4.2	31	23.3
1918	226	6.9	....	....
1919	103	3.1	77	74.7
1920	183	5.2	55	29.6
1921	176	4.6	63	35.8
1922	124	3.1	41	33.0
1923	135	3.2	47	34.8
1924	127	2.8	40	31.4
1925	122	2.6	39	31.9
1926	208	4.2	102	49.0
1927	260	5.1	101	38.8
1928	260	4.9	115	44.2
1929	738	13.3	381	51.6
1930	336	5.9	167	49.7
1931	261	4.5	152	58.2
1932	166	2.8	86	51.8
1933	141	2.4	77	54.6
1934	100	1.7	49	49.0
1935	275	4.5	124	45.0
1936	299	4.7	127	42.5
1937	245	3.8	102	41.6
1938	113	1.7	42	37.2
1939	84	1.2	29	34.5
1940	68	1.0	17	25.0
1941	87	1.2	22	25.3
1942	277	3.6	70	25.3
1943	1441	16.9	189	13.1
1944	1344	15.0	154	11.5
1945	759	8.1	126	16.6
1946	550	5.9	91	16.5
1947	291	3.0	66	22.7
1948	344	3.4	62	18.0
1949	288	2.8	61	21.2
1950	247	2.3	35	14.2
1951	342	3.0	66	19.3
1952	483	4.2	87	18.0
1953	501	4.1	107	21.4
1954	328	2.6	69	21.0
1955	291	2.2	50	17.2
1956	236	1.7	50	21.2
1957	197	1.4	62	31.4
1958	196	1.3	42	21.9
1959	190	1.2	36	16.4
1960	209	1.3	42	20.1
1961	236	1.4	50	21.2
1962	334	2.0	64	19.1
1963	388	2.2	72	19.1
1964*	473		49†	

*Through November 18, 1964.

†Data from death certificates, figures available through June, 1964.

TABLE 4.—*Meningococcal Infections, Total California Population and Civilian Population of Monterey County*

Year	California		Monterey County (Exclusive of Fort Ord)	
	Cases	Deaths	Cases	Deaths
1964	473 (Jan.-Nov. 18)	51 (Jan.-June)	1 (Jan.-Sept.)	0 (Jan.-Sept.)
1963	388	72	16	2
1962	334	64	7	0
1961	236	50	10	0
1960	209	42	3	0

TABLE 5.—*Civilian Cases of Meningococcal Meningitis with no Known Contact to Military Personnel, California and Selected Health Jurisdictions January 1, September 26, 1964*

Area	Total Cases	Cases with No Known Contact	
		Number	Per Cent
California	269	229	85.1
Los Angeles County	59	57	96.6
San Francisco	16	15	93.8
San Bernardino	9	8	88.9
Santa Clara	15	10	66.7
Contra Costa	8	5	62.5

*41 Counties reporting representing 85 per cent of California population (15.4M).

seemed clear and received considerable attention by the press and public. Anxieties already present were heightened. Not until later was it shown that the meningococcus of the soldier and that of the girl were probably different strains. She most likely acquired the organism which caused her death from some other unknown person, a tragic coincidence.

A survey of Monterey County in which Fort Ord is located revealed only one case of meningococcal meningitis in the civilian population for the period January-September 1964 (Table 4). Table 5 covers the same period for most of the state and illustrates the civilian cases of meningococcal meningitis for whom no known contact with military personnel had preceded the disease. The per cent without contact with military personnel previous to illness varied from county to county. For the state, 85 per cent of all civilian patients with meningococcal meningitis during the period indicated denied contact with military personnel.

The age distribution shown in Table 6 is significant with reference to communicability. During 1964, through September 26, 56 per cent of the cases of meningococcal meningitis in civilians in California occurred in children four years of age or younger. Of the total, 74 per cent were under 15 years of age. There is little doubt that children are the most susceptible to this disease.^{4,5,6} This is supported by the data for age distribution during 1961, 1962 and 1963 (Table 6).^{5,6}

The Meningococci

All of the strains of *Neisseria meningitidis* which have caused meningitis at Fort Ord since 1962 were either serotype B or C, 90 per cent being Type B. This is also true for civilian cases in California. Throat culture surveys in both military and civilian groups have revealed Type A very rarely. Before 1962, Type A meningococci predominated during outbreaks, with Types B and C being found only occasionally in sporadic cases.^{4,5}

Resistance to Antimicrobial Agents

By "resistant" is meant that the strain of meningococcus will grow in media containing 0.1 mg of sulfadiazine per 100 ml. It has been determined that this is the critical level insofar as sulfadiazine prophylaxis for the eradication of organisms from the nasopharynx of carriers is concerned, utilizing the standard prophylactic dose of sulfadiazine. When significant numbers of strains are resistant to this dose, its use for chemoprophylaxis in an outbreak will be unsatisfactory.⁸ The result of its use in these circumstances has been increased resistance or an increase in the number of strains that are resistant. Although blood levels in patients are much higher than 0.1 mg per 100 ml during therapy, sulfadiazine does not act effectively when resistant strains, as defined above, are the cause of meningitis. Table 3 provides data which shows the influence of sulfonamides on case fatality rates over the years. A be-



Chart 2.—Meningococcal Meningitis in California, 1940-1963.

TABLE 6.—Age Distribution of Civilian Cases of Meningococcal Meningitis, California, 1961, 1962, 1963 Through December, 1964

Cases	Total	Age										Not Dated
		Under 1	1-4	5-9	10-14	15-19	20-24	25-34	35-44	45-64	65+	
1961—												
Number	236	50	84	30	15	13	9	12	2	16	4	1
Per cent	100.0	21.2	35.6	12.7	6.4	5.5	3.8	5.1	0.8	6.8	1.7	0.4
1962—												
Number	334	77	84	29	13	52	42	6	7	17	7	
Per cent	100.0	23.1	25.1	8.7	3.9	15.6	12.6	1.8	2.1	5.1	2.1	
1963—												
Number	388	88	120	28	15	39	31	12	11	16	5	23
Per cent	100.0	22.7	30.9	7.2	3.9	10.1	8.0	3.1	2.8	4.1	1.3	5.9
Cases*	Total*	Under 1	1-4	5-9	10-14	15-19	20-24	25-29	30-39	40-49	50-59	60+
1964*—												
Number	269	44	107	28	20	22	13	1	10	14	5	5
Per cent	100.0	16.4	39.8	10.4	7.4	8.2	4.8	0.4	3.7	5.2	1.9	1.9

*41 counties reporting representing 85 per cent of California, through September 26, 1964.

ginning improvement in the case fatality rate is evident from 1938 and 1939 onward, with the most pronounced improvement beginning in 1943. Sulfanilamide became available on the West Coast about 1937, sulfadiazine by 1941. During 1938 and 1939 sulfapyridine and sulfathiazole respectively were introduced and shown to be effective against the meningococcus. However, sulfadiazine became the drug of choice and continued to be so until 1962

for both treatment of cases and for mass chemoprophylaxis in outbreaks. No strain of meningococcus was reported to be resistant to sulfadiazine until the outbreak of meningitis at the San Diego Naval Training Center in 1962. Several strains in that outbreak which were very resistant to sulfadiazine were found and characterized. Since then numerous resistant strains have been isolated from both civilians and military personnel. Meningococci have retained

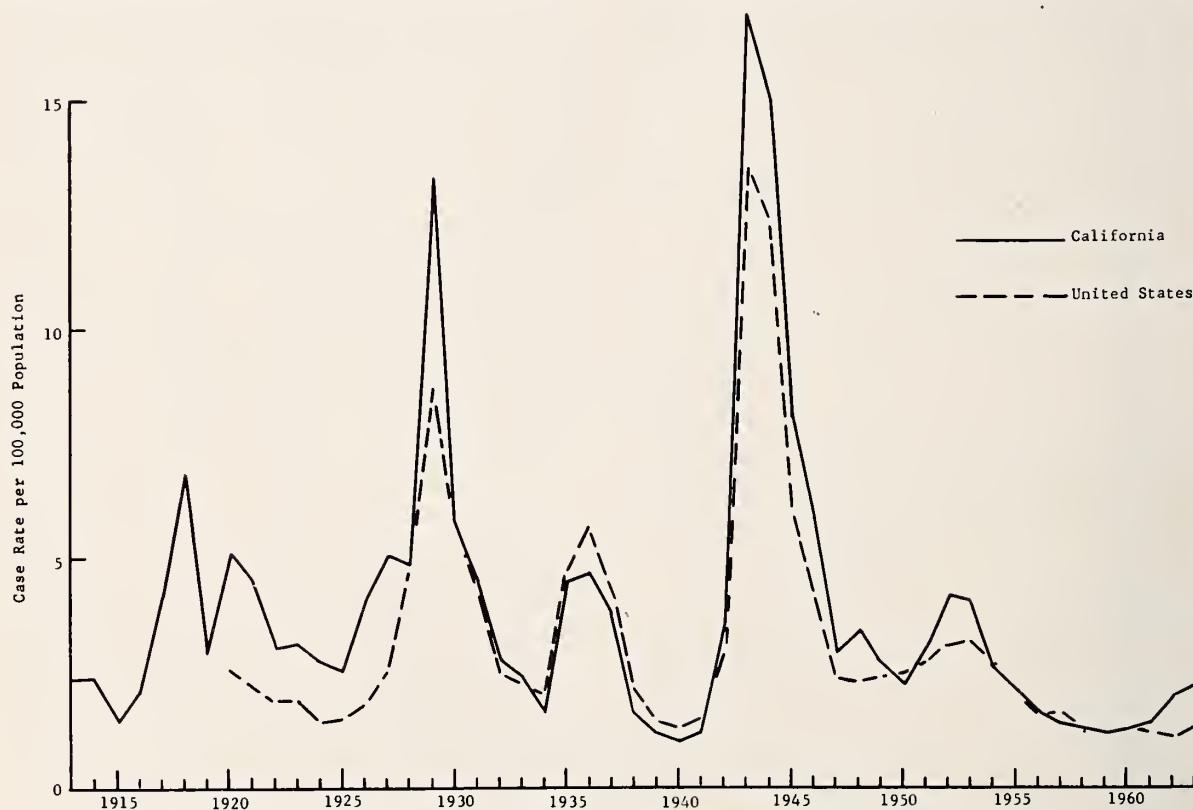


Chart 3.—Case Rate of Meningococcal Meningitis, California and United States, 1913-1963.

TABLE 7.—Results of Serotyping and Sulfonamide Sensitivity Testing of 91 Strains of Meningococci from all Parts of California

	Total	Number Resistant to Sulfa	Per Cent Resistant to Sulfa	Number Sensitive to Sulfa	Per Cent Sensitive to Sulfa
NUMBER OF STRAINS OF MENINGOCOCCI					
Total examined	91†	31	36	66	64‡
Number					
Type A	1	0	0	1	0
Number					
Type B	72	30	42	42	62.5
Number					
Type C	16	1	6.2	14	94
Per cent					
Type B	79				
Per cent					
Type C	17				

*By the Microbiology Laboratory, California State Department of Public Health, in collaboration with the Communicable Disease Center, Atlanta, Georgia.
†2 strains were too rough to type.
‡A strain of type B was not tested.

unchanged their sensitivity to penicillin, tetracycline, chloramphenicol and most broad spectrum antimicrobial agents. This is fortunate for treatment but none of these agents has been shown to be effective for mass prophylaxis of carriers in doses less than the full therapeutic amounts.

Drug Prophylaxis

During 1962 and 1963 mass chemoprophylaxis with sulfadiazine was carried out on nine occasions at Fort Ord. Doses of 2 and 4 grams were used at different times. In the Fall of 1962 the case rate diminished following administration of sulfadiazine to all base personnel. When this was repeated in 1963 it was ineffective and new cases continued to occur, Chart 1. Mass chemotherapy as a control measure was discontinued after June 28, 1963. It was the opinion of the Committee on Meningococcal Meningitis of the Armed Forces Epidemiological Board that there is sufficient evidence available to state that no known single antimicrobial agent or combination of agents currently available is satisfactory for mass prophylaxis of contacts or the treatment of carriers in outbreaks due to sulfonamide resistant meningococci. The continued routine use of sulfonamide prophylaxis for meningococcal infections at Fort Ord was not recommended. The committee stated that sulfadiazine prophylaxis according to previously accepted dosage schedules should be utilized in outbreak situations only after laboratory studies have established that the organism is sensitive to this drug.

A rationale exists for the use of sulfadiazine prophylactically for prevention of meningococcal meningitis in contacts of sporadic civilian cases of the

TABLE 8.—Meningococcal Meningitis Cases by Area,* California, January-November, 1964

Area, County and Health Jurisdiction	Cases†		
	Total	Civilian	Military‡
California	(496)	(380)	(116)
North Coast	(12)	(12)	.....
Humboldt-Del Norte	5	5	.....
Lake	1	1	.....
Mendocino	6	6	.....
Sacramento Valley	(14)	(14)	.....
Sacramento	7	7	.....
Sutter	1	1	.....
Tehama	1	1	.....
Yolo	4	4	.....
Yuba	1	1	.....
Mountain	(5)	(5)	.....
El Dorado	1	1	.....
Nevada	2	2	.....
Shasta	2	2	.....
San Francisco Bay	(108)	(107)	(1)
Alameda County	26	26	.....
Contra Costa	13	12	1
Marin	2	2	.....
San Francisco	23	23	.....
San Mateo	11	11	.....
Santa Clara County	30	30	.....
Solano	3	3	.....
Central Coast	(103)	(8)	(95)
Monterey	96	1	95
San Luis Obispo	3	3	.....
Santa Cruz	4	4	.....
San Joaquin Valley	(36)	(36)	.....
Fresno	11	11	.....
Kern	6	6	.....
Kings	4	4	.....
Merced	2	2	.....
San Joaquin	5	5	.....
Stanislaus	2	2	.....
Tulare	6	6	.....
South Central Coast	8	8	.....
Santa Barbara County	2	2	.....
Ventura	6	6	.....
Los Angeles Metropolitan	(158)	(157)	(1)
Los Angeles County	140	139	1
Orange	18	18	.....
San Diego	(38)	(19)	(19)
San Diego	38	19	19
Southeast	(14)	(14)	.....
Riverside	3	3	.....
San Bernardino	11	11	.....

*Counties are listed only if cases were reported.
†Numbers in parentheses are totals for the area.
‡Figures are those reported by health jurisdictions and may differ from military reports.
Source: California State Department of Public Health, Morbidity Records.

disease. To date two-thirds of these cases have been due to sulfonamide-sensitive organisms.

Incidence of Carriers

Surveys were made during 1964 by the Sixth Army Laboratory on groups of men reporting to the Armed Forces Recruitment Center in Oakland, California, for preinduction physical examinations. These men, still in civilian clothes, had no previous opportunity for contact with army personnel. New trainees at Fort Ord had throat cultures immediately

on arrival. A group of about 30 men have had a culture each day at the post over a one-month period. Others had serial cultures at weekly intervals. Platoons within companies and battalions had throat cultures. Several hundred University of California students had throat cultures taken by the Microbiology Laboratory of the State Department of Public Health during one day as a further control on the carrier rate in civilian groups in ages 17 to 24. Serotyping was done on all meningococci isolated and sulfonamide sensitivity determined on each strain.

Amongst these groups, the carrier rate for meningococci averaged 20 per cent on first culture, with a range of 9.4 to 25 per cent. This is believed to reflect the current carrier rate in the adult male civilian population in California. During basic training the carrier rate may reach 70 to 90 per cent by the eighth week. However, no correlation has been apparent between the carrier rate and the occurrence of cases of meningitis. The carrier state in an individual may be transient, in that a man may show the organism on culture of his throat on one day and not the next, or vice versa. Over 90 per cent will have menin-

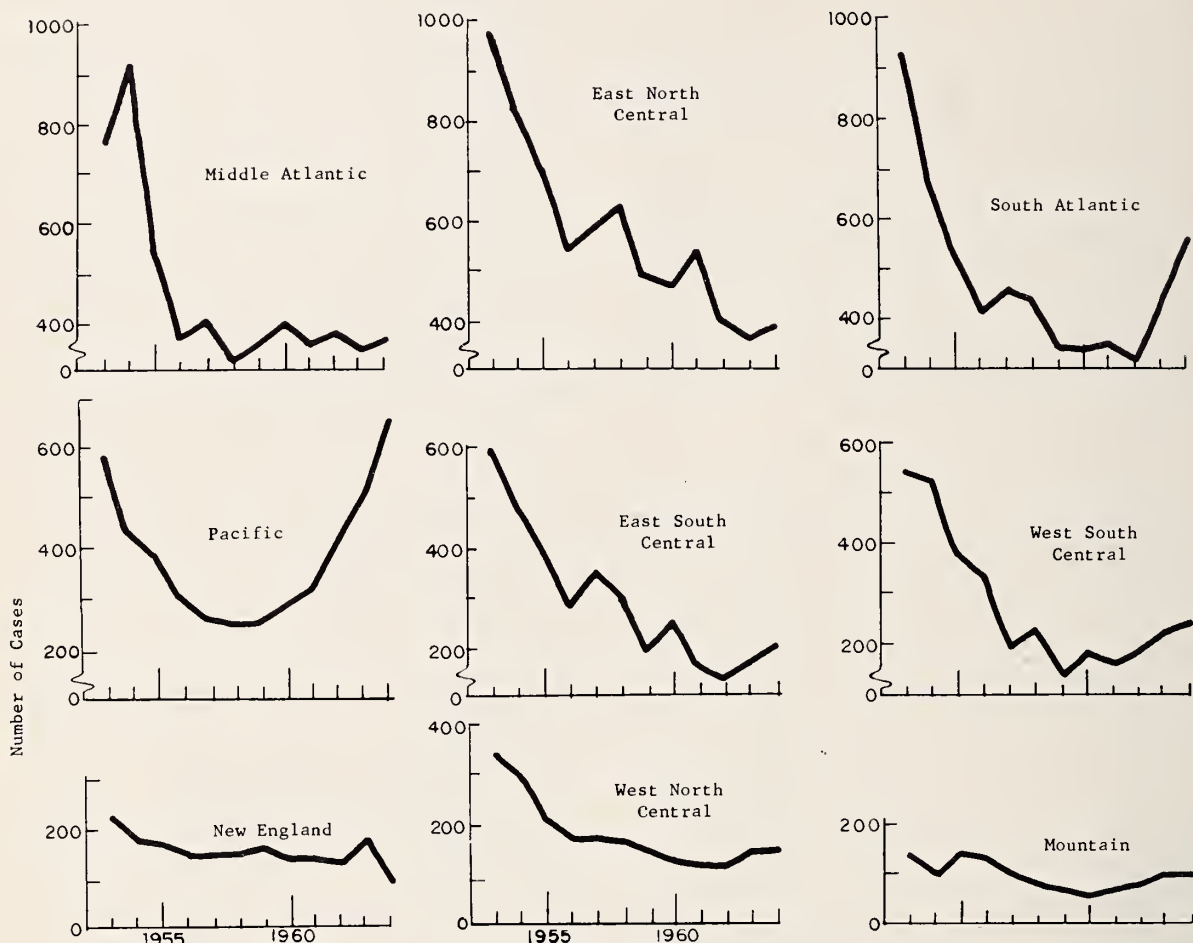
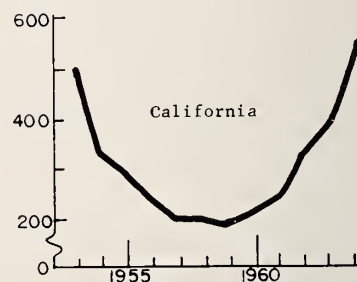


Chart 4.—Cases of meningococcal meningitis, California and each area* of the United States, 1953-1964.†

* Areas contain the following states: *New England*: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut; *Middle Atlantic*: New York, New Jersey, Pennsylvania; *East North Central*: Ohio, Indiana, Illinois, Michigan, Wisconsin; *West North Central*: Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas; *South Atlantic*: Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida; *East South Central*: Kentucky, Tennessee, Mississippi; *West South Central*: Arkansas, Louisiana, Oklahoma, Texas; *Mountain*: Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada; *Pacific*: Washington, Oregon, California, Alaska, Hawaii.

† 1964 totals estimated assuming cases will continue to occur throughout 1964 at the same frequency of occurrence as in October and November 1964.



gococci one or more times if a series of daily cultures are made.

Most of the strains isolated from the civilians were sulfonamide-sensitive, Table 7. Organisms grown on cultures obtained from trainees, cadremen and personnel generally on the Army post were more frequently resistant to sulfadiazine than organisms from cultures in the civilian population. This was variable between companies.

The meningococci isolated from clinical cases of meningitis at Fort Ord showed approximately 50 per cent of the strains to be resistant to sulfadiazine. The organisms were all group B or C.

Civilian Population

Examination of 91 strains of meningococci from patients with meningitis located in all parts of the state began on April 1, 1964, in collaboration with the Communicable Disease Center, Atlanta, Georgia. Serotype A was found only once, Table 8. Table 7 indicates that it is the type B which is most often resistant to sulfadiazine. Only two of 16 Type C strains obtained were resistant. Sixty-three per cent of the type B strains were sensitive to sulfadiazine.

The rapid population growth in California and the case rate per 100,000 population are noted in Chart 2. The death rates and case rates for California since 1913 are shown in Table 3. The numbers of cases and of deaths are also given. The last peak in the cyclical occurrence of meningococcal meningitis was in 1953 with 501 cases and a rate per 100,000 of 4.1. There were 5,077 cases reported for the entire United States, a rate of 3.2 per 100,000 population. Then the number of cases declined each year to the low when 190 cases were reported in California and 2,180 for the United States—case rates of 1.2 and 1.2 respectively. Since 1959 there has been a slow and gradual increase in the number of cases. In 1963, 388 cases were reported for the state, a case rate of 2.2.

To December, 1964, 496 cases had been reported in California or 2.7 per 100,000 population, Table 8. The rates for the United States as a whole for 1963 and the first ten and a half months of 1964 were 1.1 and 1.2 respectively. Case rates in California are compared with those of the United States in Chart 3. Chart 4 shows the incidence of meningococcal infection by area throughout the United States. Every region except New England shows a beginning rise in incidence. California shows a sharp increase.

Precautions at Fort Ord

Precautions against spread and measures to prevent meningococcus infection at Fort Ord are of several orders:

A. Now in effect:

1. The input of new basic combat trainees and of Army Reserve personnel to Fort Ord has been discontinued temporarily. There were no basic trainees at this Post as of December 1, 1964. It was planned to permit one or two months to elapse before training is resumed. This applies only to men in their first eight weeks of training and to Army reservists.

2. When training is resumed, visitors to trainees will be limited to parents while the trainee is in residence at Fort Ord.

3. Upon completing the eight weeks of basic training trainees will be transferred immediately to their next duty assignment without a leave or pass at that time.

4. When training is resumed, all the precautions which were in effect when the input of trainees was stopped will be reinstituted.

B. Preventive measures initiated by order dated August 4, 1964, and subsequent orders.

These precautionary measures are for the purpose of preventing indiscriminate intermixing of many groups of trainees:

1. The reception procedure was changed so that all men were assigned to a platoon as soon as they arrived at the post. The individual remains with the same trainees throughout the roughly 72 hours of reception procedures and he remains in his assigned platoon for the eight weeks of basic training. The "buddy platoon" method, in which only two platoons of a company are allowed to mix freely, is employed.

2. Leaves or passes were cancelled for the duration of the eight-week training period.

3. The trainees were not allowed to leave their company area or to go to other company areas or to the Post Exchange, the theatre or chapel. Religious services, movies and Post Exchange services were brought to the companies individually and provided out of doors.

4. For classroom work the classes were divided to provide a vacant seat between each man.

5. Additional barracks were provided to make possible an interval of two weeks between the evacuation of the barracks by one group on completion of training and the refill of these barracks by newly arrived trainees. This prevented the so-called "back-to-back" filling of barracks and provided a two week free period for the cadremen who live with the recruits. They are assigned to other duties when their company area has been evacuated.

6. The input of new trainees was reduced to 800 per week during September and was projected at 700 a week or less during October. This compares with a weekly input of 1,000 to 1,200 or more men up until the end of August.

C. Other preventive measures:

1. A system of close surveillance of recruit personnel was put into effect. Any trainees showing indication of a respiratory infection, headache or other minor symptoms which might suggest impending meningococcal infection were put in hospital on suspicion for a 48-hour period of observation. This step was important for early recognition. Early diagnosis and treatment seems to have been a most important factor for the success of treatment.

2. Physical conditioning activities were lightened to limit the chance of over-fatigue.

Living conditions for the troops appear to be excellent and to maintain the principle of limited intermixing. The barracks, kitchens and utilities are scrupulously clean. The men have a full 72 square feet of space each. However, the double decker bunk system is still used.

Expert consultants, civilian and military, have come to Fort Ord to consider the problem of meningococcal meningitis and its prevention there. A team from the Walter Reed Army Institute of Research (WRAIR) made throat culture surveys on several occasions during the past two years. The Committee on Meningococcal Meningitis of the Armed Forces Epidemiological Board spent two days at Fort Ord during September, 1964, for a review of the meningitis problem.

Headquarters, Sixth Army maintains a day to day surveillance and the Sixth Army Laboratory has developed the capability for comprehensive studies.

The California State Department of Public Health has close liaison with officials at Fort Ord and Sixth Army headquarters. The Post was visited each week for several weeks. The Microbiology Laboratory of the State Health Department collaborated in making throat cultures.

Discussion

The natural habitat of *Neisseria meningitidis* is the nasopharynx of human beings.^{3,4} The results of studies in progress suggest that nearly all people have the organism in their nasopharynx at some time or other, if not continuously. The dispersal of the organism throughout a population, civilian or military, is apparently very rapid. However, it is probable there are several thousands of carriers of the organism for every case of meningococcal meningitis. No other animal has been shown to act as either reservoir or vector in the transmission of this organism.⁴ Also not involved are fomites, such as soiled linen, blankets and mattresses used by former patients or carriers.

Currently about 20 per cent of the 17 to 24-year-old male civilian population are carriers of Type B meningococci. Contact with meningococci is quite possible without exposure to military personnel. The organism is so widely disseminated throughout the population that it is impossible to decide with certainty the source of the organism infecting any given individual. Multiple opportunities for exposure are constantly present. This is a finding which has been emphasized and extended by studies associated with the episode at Fort Ord. Further studies will indicate whether the carrier rate remains high throughout the year.

It is doubtful if military groups pose any greater hazard to the civilian population than the hazard encountered by civilian groups in their daily exposure to carriers in the civilian population. The occurrence of cases must be the result of a failure on the part of the host to resist invasion. It is the consensus that meningitis is less likely to develop in persons who harbor the organism than in those who do not. A resistance is acquired, the duration of which remains to be clarified. These are aspects of the problem which would bear on the effectiveness of a vaccine.

An analysis of cyclical trends in the occurrence of meningococcal meningitis in California since 1918 indicates that this disease occurs in irregular cycles which average nine years duration. It is probable that the present upward cycle may continue for another two years.

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Four Hundred and Fifty Consecutive

OPEN HEART OPERATIONS

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■ *Four hundred and fifty consecutive open heart operations on 437 patients, using cardiopulmonary by-pass, were done at the Stanford Medical Center from January 8, 1960, to July 15, 1964. The in-hospital mortality was 6.4 per cent. Of the patients who survived, 18.4 per cent had a major complication. In 57 per cent of the cases the lesions were congenital, in 42 per cent acquired, and in 1 per cent both congenital and acquired.*

The correction of nearly all intracardiac and serious vascular defects is now possible with the use of extracorporeal circulation. The mortality and morbidity rates are low enough so that every person with a cardiovascular defect should be seriously considered for surgical correction.

CORRECTION of the vast majority of cardiovascular defects can now be safely accomplished with the aid of total cardiopulmonary bypass. This paper is a report of 450 consecutive open heart operations using cardiopulmonary by-pass on 437 patients at the Stanford Medical Center. The first patient was operated upon on January 8, 1960, and the last on July 15, 1964 (Table 1). Two hundred and forty-nine patients had congenital cardiovascular anomalies, 185 had acquired defects, and three had both congenital and acquired lesions. Fifty-nine patients had replacement of one or both of the valves on the left side of the heart. There were 29 deaths during the hospital stay and 14 late deaths.

From the Department of Surgery, Stanford University School of Medicine, Palo Alto.

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Atrial Septal Defect

One hundred and one patients were operated upon for defects in the atrial septum. This group included patients with associated pulmonic stenosis and anomalous pulmonary venous drainage. The age range was four to 59 years, and the defects varied in size from one centimeter in diameter to near absence of the septum. In 94 patients the defect was closed primarily with two rows of suture, and in seven a Teflon patch was used.

There was one operative mortality and one late death. The operative mortality occurred in a 47-year-old woman with pulmonary hypertension, complete heart block with a previously placed implantable pacemaker and congestive heart failure. This patient died from a massive cerebral embolus on the first postoperative day. The one late death oc-

TABLE 1.—Mortality Data on 450 Consecutive Open Heart Operations (January 8, 1960 to July 15, 1964)

Lesion	Number of Operations	Hospital Mortality	Late Mortality
Atrial Septal Defect			
With anomalous pulmonary veins	14	0	0
No anomalous pulmonary veins	80	1	1
With pulmonic stenosis	7	0	0
Aortic stenosis			
Acquired	59	2	7
Congenital	18	0	0
Supravalvular	1	0	0
Muscular subaortic	4	0	0
Mitral valve disease			
Predominant stenosis	74	9	2
Predominant insufficiency	22	3	0
Ventricular septal defect			
Isolated defect	49	2	1
Associated aortic stenosis	1	0	0
Associated pulmonic stenosis	3	0	0
With atrial septal defect	1	1	—
Fallot's anomaly	43	0	1
Aortic insufficiency	19	5	1
Combined aortic and mitral valve	18	1	0
Pulmonic stenosis	15	0	0
Endocardial cushion defect	9	3	0
Miscellaneous			
Congenital with acquired	3	0	0
Thoracic aneurysm	3	0	0
Myocardial sarcoma	1	0	1
Tricuspid insufficiency	1	0	0
Dissecting thoracic aneurysm with aortic insufficiency	1	1	0
Total anomalous pulmonary venous return	2	1	0
Single ventricle with pulmonic stenosis	1	0	0
Hypoplasia of aortic arch	1	0	0
TOTAL	450	29	14

curred in a 38-year-old woman with pulmonary hypertension and congestive heart failure. She had a cerebral embolus several hours postoperatively from which she never fully recovered and went on to die in another hospital. At last report the remainder of the patients were doing well with no evidence of a residual shunt.

Aortic Stenosis

Eighty-one patients had 82 operations for aortic stenosis. This group includes 58 patients with acquired valvular disease, 18 with congenital valvular and subvalvular lesions, four with muscular subaortic stenosis, and one with supravalvular stenosis. The age varied from nine months to 25 years in the patients with congenital lesions and from 26 to 68 years in patients with acquired disease.

Three of 18 patients with congenital aortic stenosis and gradients across the aortic valve in excess of 40 mm of mercury had minimal commissural fusion. The valve in two of the three was bicuspid, and in all three the leaflets were grossly deformed.

In all cases we attempt to sculpture the diseased valve in patients with acquired lesions. In many

cases the calcific deposits extend through the entire thickness of the leaflets, making debridement impossible. If good mobility of the leaflets is not obtained or cusp substance is lost during the debridement, the valves are replaced with a Starr-Edwards prosthesis.

Forty-five patients had a debridement operation with no hospital deaths and five late deaths. Fourteen patients had replacement of the valve with two hospital and two late deaths. One patient who had the debridement operation was operated upon again later and had a prosthetic valve put in place.

Mitral Valve Disease

Ninety-three patients had 96 operations for mitral valve disease. In this group there were 74 operations for primary mitral valve stenosis with or without insufficiency and 22 operations for predominant valve insufficiency. The ages varied from 3 to 63 years. Two patients who had an operation for mitral stenosis had their mitral valves replaced at a later date because of severe insufficiency, and in one patient with a mitral valve prosthesis insufficiency that developed around the valve was corrected. Fourteen patients with predominant stenosis and 14 with predominant insufficiency had valve replacements. There were 12 hospital deaths, nine in patients with stenosis, four in patients with insufficiency and two late deaths. Six of the 12 patients who died in hospital had class IV mitral valve disorders.

Ventricular Septal Defects

Fifty-three patients had 54 operations for closure of a ventricular septal defect. Included in this group were three patients with associated pulmonic stenosis, one with aortic stenosis, one with an atrial septal defect and one with aortic insufficiency. The age range was 17 months to 51 years.

Early in the series, large defects in 26 patients were closed primarily with interrupted sutures, and then a pledget of compressed Ivalon® or a Teflon® patch was sutured over the defect for reinforcement. Currently, any defect larger than one centimeter in diameter or with muscular edges is rimmed with mattress sutures and a Teflon patch slightly larger than the defect is sutured in place. The sutures are placed on the right ventricular side of the ventricular septum to avoid producing heart block. Twenty patients with small defects and fibrous edges had the defects closed primarily with interrupted sutures without a plastic reinforcement.

In two patients transient heart block developed postoperatively and the condition was treated with a pacemaker unit. No patient remained in complete heart block. There were three hospital deaths, one in a 17-month-old with decided pulmonary hypertension, one in a patient with an undiagnosed co-

arctation which prevented perfusion of the cerebral vessels and one in a boy with an associated atrial septal defect and severe pulmonary hypertension.

Fallot's Anomaly

Forty-three patients, ages one and one half to 42 years, underwent total correction of Fallot's anomaly. The ventricular septal defects were closed primarily and reinforced with a plastic bolster in 22 cases. In the other 21 cases the ventricular septal defect was rimmed with mattress sutures and a Teflon patch slightly larger than the defect was sutured in place. Twenty of the first 22 patients had the outflow tract of the right ventricle enlarged with a plastic patch, while only two of the last 21 patients had this done. All the patients were decidedly improved after operation. There were no hospital deaths. One patient died nine months postoperatively; autopsy showed no apparent cause. At the time of this report three patients had evidence of a residual ventricular septal defect, and one was scheduled for reoperation. Complete heart block postoperatively developed in five patients, and in all but one a normal sinus rhythm was finally achieved.

Aortic Insufficiency

Seventeen patients had 19 operations for aortic insufficiency. In our practice if the valve is tricuspid and the annulus is dilated, resection of a portion of the noncoronary sinus aortic wall and annulus is done, thereby allowing the leaflets to come together in diastole. If this cannot be carried out, the valve is replaced. Ten of the 17 patients had aortic valve replacements. One patient was successfully reoperated upon for suture closure of a small leak around the prosthetic valve. In one child acute aortic insufficiency developed after closure of a ventricular septal defect. An attempt to suture the tear in the aortic leaflet was unsuccessful. The next day the torn leaflet was replaced with a Teflon cusp; however, the patient died.

There were four other hospital deaths and one late death. Two patients died in acute left ventricular failure; in one patient the aortic suture line separated, and in one case a myocardial infarction with uncontrollable ventricular tachycardia leading to ventricular fibrillation occurred on the scheduled day of discharge.

Combined Aortic and Mitral Valve Disease

Eighteen patients had combined aortic and mitral valve repair. Despite the severity of the lesions, only one patient in this group died. Three patients had both aortic and mitral valves replaced, and

three had one valve replaced and one repaired. All the patients are decidedly improved.

Pulmonic Stenosis

Fifteen patients, ages 14 months to 36 years, had pulmonic valvulotomy. There were no deaths, and all the patients had excellent clinical results.

Endocardial Cushion Defects

Eight patients had nine operations for repair of endocardial cushion defects. There were three hospital deaths and no late deaths. Temporary complete heart block developed in four cases, and in one patient the heart remained in nodal rhythm. One patient died in severe heart failure immediately postoperatively, one of unrecognized cardiac tamponade, and one died in recurrent heart block several days after removal of the pacemaker wire.

Miscellaneous

Three patients had both congenital and acquired lesions—one with a subvalvular aortic diaphragm, bacterial endocarditis and aortic insufficiency; one with anomalous drainage of the left pulmonary veins and mitral stenosis; one with a ventricular septal defect, bacterial endocarditis, aortic insufficiency and mitral insufficiency. Three patients had resection of a large thoracic aneurysm, involving the ascending thoracic aorta in two cases, and extending from the left subclavian artery to the celiac axis in the other. One of these patients was bleeding excessively and aortic insufficiency developed suddenly several hours postoperatively. He was returned to the operating room on the evening of the first postoperative day and replacement of the aortic valve was successfully carried out.

One patient had removal of a myocardial sarcoma involving the outflow tract of the right ventricle. She died ten months postoperatively from an isolated intracerebral metastatic lesion. One patient had a synthetic replacement of a hypoplastic segment of the aortic arch, and one girl underwent repair of massive tricuspid insufficiency following closure of a ventricular septal defect six years previously. Another patient was thought to have tetralogy of Fallot, but when the right ventricle was opened it was noted she had a single ventricle with a common tricuspid and mitral valve. In two patients operation for repair of total anomalous venous return was carried out. One of the patients died in the hospital.

A 67-year-old man with acute aortic insufficiency from a dissecting thoracic aneurysm died on the fourth postoperative day from rupture of a false aneurysm at a suture line of the abdominal aorta which had been resected seven years previously for an aneurysm.

TABLE 2.—*Data on Hospital Morbidity and Cause of Mortality in a Series of 450 Consecutive Open Heart Operations*

<i>Cause of Complication</i>	<i>Survived</i>	<i>Died</i>
Emergency reoperation	38	3
Severe heart failure	15	13
Complete heart block	10	1
Cerebral embolus	4	4
Infection		
Wound	2	0
Septicemia	1	1
Acute renal failure	0	2
Cardiac arrest with resuscitation	2	—
Wound dehiscence	2	0
Undiagnosed cardiac tamponade	0	2
Undiagnosed coarctation	0	1
Myocardial infarction	1	1
Ruptured aneurysm	0	1
TOTAL PATIENTS	75 (18.4%)	29 (6.4%)

Discussion

Total correction of intracardiac and serious extracardiac vascular defects has been made possible by the heart-lung machine. The mortality of uncomplicated congenital defects is that associated with general anesthesia alone, and even in the complicated cases the mortality is extremely low. As might be expected, the mortality in acquired lesions is related to the severity of the disease.

The morbidity and mortality following use of cardiopulmonary by-pass are tabulated in Table 2. Forty-one patients were returned to the operating room for emergency reoperation. Two of 32 patients operated upon for excessive hemorrhage died, one of a massive cerebral embolus and one when the aorta separated several hours postoperatively. One patient, who was returned for resuture of a separated sternum, died in acute left ventricular failure.

Thirteen patients died in severe heart failure, four in the operating room and nine after a progressive downhill course. Several of these patients had severe pulmonary hypertension, which contributed to their death.

Complete heart block developed in 11 patients. Normal sinus rhythm resumed in eight, two had nodal rhythm and one died in recurrent heart block

several days after removal of the pacemaker wire. None of the patients had a permanent pacemaker.

Nine patients had cerebral emboli. Four lived and regained full function; four died as a direct consequence of the embolus, and one died of other complications. Wound infections developed in three patients, one of whom died with multiple complications. Septicemia occurred in two cases: one of the patients had a staphylococcus aureus infection around an aortic valve prosthesis and went on to die; the other had salmonella septicemia which was successfully treated.

The only two patients who were treated for acute renal failure died. One of them had massive repeated hemolysis postoperatively, leading to renal failure and death. The other had multiple complications consisting of persistent heart failure, multiple cardiac arrhythmia, wound dehiscence with infection, and cerebral emboli.

Two patients had sudden cardiac arrest postoperatively, successfully treated in both cases. Two patients died late in the postoperative course, one on the third and one on the seventh postoperative day. In retrospect their deaths are thought to have been due to unrecognized and progressive cardiac tamponade. In only one case did a major blood reaction attributable to the extracorporeal circulation occur. Several patients had postoperative electrocardiographic changes, consistent with myocardial ischemia or infarction, which were thought to be due to the by-pass procedure. Only two patients had clear-cut evidence of a myocardial infarction during the postoperative convalescence.

Fifty-nine patients had prosthetic valve replacements, the mitral valve in 23, the aortic valve in 24, both the aortic and mitral valve in three; and in four cases one of the left sided heart valves was replaced while the other was repaired. At present the Starr-Edwards prosthesis is used. Recent experience in the laboratory and in a limited number of clinical cases suggests that the aortic valve homograft placed in the orthotopic position may be superior to the artificial valve for treatment of aortic valve disease.

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Paradoxes of Takayasu's Disease

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■ *Takayasu's disease (or arteritis) has been defined as an "idiopathic aortitis usually affecting young women." It can come to light from very spectacular and often quite puzzling clinical manifestations.*

Six cases of Takayasu's disease were investigated at the UCLA Hospital in the years 1961-1962, and signs and symptoms of central nervous system involvement were found in five of the patients. This relatively high incidence of neurological deficit prompted a review of case reports in the literature and this in turn led to a series of "unexpected" findings in the historical evolution of the illness as well as in its anatomopathological aspects.

The study indicated that Takayasu's disease is frequently associated with neurological manifestations, at times very severe. In addition, the disease appears to be far more extensive than its classical description suggests. New criteria for the diagnosis of Takayasu's disease must include, among other things, special emphasis on the disseminated nature of the disease.

TAKAYASU'S DISEASE is a chronic, progressive and as a rule obliterative arteritis involving the arch of the aorta and its major branches. It occurs predominantly in young females and often begins with spectacular and quite puzzling clinical manifestations.

Neurological symptoms are said to occur in 30 to 50 per cent of cases, and in 5 to 10 per cent they may be the first that come to notice.^{6,19}

Six cases of Takayasu's disease were investigated

at the UCLA Center for Health Sciences in the years 1961-1962.¹⁹ In five of them there was evidence of moderate to severe neurological deficit. This high incidence of nervous system involvement prompted a thorough review of case reports in the literature, which in turn elicited several unrecognized and "paradoxical" aspects of this condition.

The present communication deals with some paradoxes of the history of Takayasu's disease. In addition the criteria for the diagnosis of Takayasu's disease will be presented with emphasis on the occurrence of some "unsuspected" clinical features.

Presented before the Section on Psychiatry and Neurology at the 93rd Annual Session of the California Medical Association, Los Angeles, March 22 to 25, 1964.

Historical "Paradoxes"

In 1839, John Davy described the progressive obliteration of the main branches of the aortic arch in a 55-year-old man.⁷ The patient had signs and symptoms of cerebrovascular insufficiency and the pulses in the upper extremities were absent. The past history and later the post mortem findings established the existence of syphilitic aortitis. This was the first description of what is known today as the *aortic arch syndrome*.

Seventeen years later, Savory²² published the "case of a young woman in whom the main arteries of both upper extremities and the left side of the neck were throughout completely obliterated." This is presumably the earliest case of record on what has been very specifically identified in the past decade as Takayasu's disease (or arteritis). These two reports remained more or less unnoticed and no distinction was made between the two conditions.

In 1908 Takayasu,²⁵ a Japanese ophthalmologist, called attention to peculiar ocular changes he had observed in a young woman. The findings were compatible with a form of chronic hypoxia. Takayasu offered no explanation for these changes. In discussion of the case, two other ophthalmologists, Onishi and Kagoshima, stated that they had noted

similar ocular changes in two young women who were found to have no pulses in the upper extremities.

Later the name of Takayasu became somehow linked to a disease which he had never really described.

Other cases were published in Japan^{17,21,23,24} and gradually a clinical picture emerged: Takayasu's disease was arteritis of unknown cause, occurring predominantly in young women; it affected the aortic arch and its branches, thereby causing signs and symptoms of vascular insufficiency in the head, neck and upper extremities (Figure 1). A suggestion was even made that the condition might be endemic to Japan.¹ Later, a spectacular but unfortunate synonym was introduced by Shimizu and Sano:²⁴ "pulseless disease." In the Western World, Takayasu's disease was not recognized and became confused with the aortic arch syndrome of various etiologic derivation.

By 1953 Ross and McKusick²⁰ had reviewed 100 cases of aortic arch syndrome. Despite the fact that Frövig and Frövig¹⁰ and Löken¹¹ had suggested in 1946 and in 1951, respectively, that a peculiar kind of arteritis might be responsible for some forms of this condition, it was not until 1954 that Erik Ask-Upmark¹ presented the first clear classification of

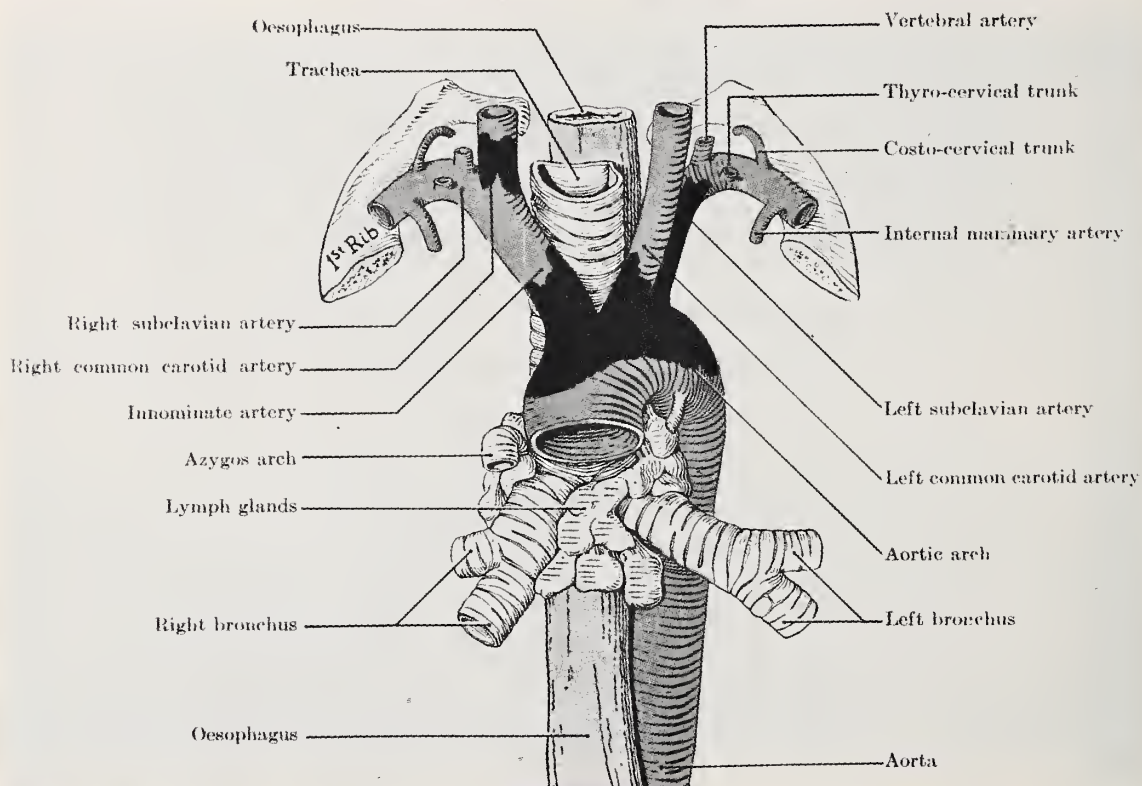


Figure 1.—Diagrammatic illustration of the anatomic-pathological changes observed in Takayasu's arteritis. The blackened areas represent the most common sites of involvement (compiled from 52 cases^{1,14,15}).

the aortic arch syndromes. He singled out the "young female arteritis" as a definite and separate etiological entity. This study was published nearly a hundred years after Savory's original description.

Numerous reports of cases of "Takayasu's disease" had appeared before Ask-Upmark's communication and many followed it. Many more cases of "aortic arch syndrome" were published over the same period. There was gross confusion in terminology and the creation of new names or combination of new terms to designate either a non-specific aortic arch syndrome or a case of Takayasu's disease. In 1962 Judge and co-workers¹⁴ found in the literature 13 different terms that had been used at one time or another to describe Takayasu's disease. They suggested that the term *Takayasu's arteritis* be substituted for all other names or combinations of names. They also reemphasized the specificity of the arteritis: An idiopathic aortitis usually affecting young women.

Despite the relatively high incidence of central nervous system manifestations occurring in both the aortic arch syndrome and Takayasu's arteritis, only one report of this phenomenon appeared in the neurologic literature over a period of ten years and, according to one of the authors, probably "added to the confusion."⁶

Most, if not all, investigators concerned with Takayasu's disease have considered the disorder to be caused by auto-immune reactions. If this is the case, one would expect a fairly generalized distribution of the pathologic changes. For this reason an anatomical clinical study was undertaken at the UCLA Center for Health Sciences where six cases of Takayasu's disease were seen in the years 1961-1962. The pathological findings observed in Case 1 will be presented in detail, since they were not available at the time of the first report of these six cases.¹⁹

Reports of Cases

CASE 1. A 43-year-old Japanese woman was referred in August 1961 for evaluation of a rapid decrease in blood pressure. She complained of dizzy spells and transient dimness of vision. No pulsation could be felt in the upper extremities or the neck. Blood pressure was unobtainable in the upper extremities and was grossly unequal in the thighs. The neurological examination was within normal limits except for signs of neovascularization in both optic fundi. The blood sedimentation rate was accelerated, but results of all other laboratory studies including a serologic test for syphilis were within normal limits. A retrograde aortogram demonstrated dilatation of the ascending aorta and occlusion of the left common carotid and left subclavian arteries. The right common carotid artery filled only faintly.

Treated with steroids and anticoagulants, the patient reported pronounced relief of symptoms.

Sixteen months later she was readmitted at UCLA with complaint of anterior chest pain and an aching sensation in the upper extremities on exertion. Dizzy spells had reappeared and lasted longer, but she had not had syncopal episodes. There was a pulsating left, superior, precordial bulge which was interpreted as "an aneurysm of the aortic arch, secondary to distal vascular occlusion." As it was believed that this aneurysmal enlargement represented a serious threat to the patient's life, surgical correction with a by-pass graft was carried out. The operation was technically successful but, within a few days the patient went into severe congestive heart failure and died.

The post-mortem examination revealed widespread evidence of cardiac failure with passive venous congestion of all major organs. There was thrombosis of the aortic arch graft and almost complete obstruction of the origin of all the great vessels. The distal aorta was moderately stenosed. The left common iliac artery was considerably narrowed at its origin, although its tributaries appeared of normal size and caliber. There were several primary branches of the cerebral vessels which were almost completely obliterated. This had resulted in a massive infarction of the left temporoparietal region, left half of the mid-brain, brain stem and cerebellum. In all involved vessels the narrowing was quite concentric and there was no evidence of the "pathognomonic" yellowish irregular plaquing seen in arteriosclerotic vascular disease. The segment of aortic arch resected at operation had an irregular white yellow surface studded with small, firm nodules. On cross-section, the wall of the aorta was decidedly thickened, particularly near the ostia of the great vessels.

On microscopic examination, the thickening appeared to be primarily confined to the intima. There was a dense network of swirls and lamellae interspersed with fibrous tissue. Neither foamy histiocytes nor cholesterol clefts (seen commonly in the atheromata) were observed. The muscular and elastic components of the media were disrupted by dense connective tissue cells. The adventitia was greatly thickened and fibrotic. Perivascular collections of lymphocytes and plasma cells were observed between fibrous lamellae in both media and adventitia. Some arterioles seen in cross-section exhibited similar changes with thickened walls and partial obliteration of the lumen. Special stains for spirochetes were negative for such organisms.

The left common iliac and proximal stump of the left common carotid arteries presented changes identical to those described in the aorta. Some of these changes are shown in Figure 2.

CASE 2. A 19-year-old Mexican housewife was admitted to the UCLA Center for Health Sciences in March 1962. She gave a six-month history of fleeting dizzy spells, dimness of vision and coldness and numbness in the right upper extremity. On two occasions she had noted severe weakness of the right hand and arm and inability to speak. A carotid angiogram had been performed at another hospital and revealed almost complete occlusion of the left common carotid artery at the bifurcation, as well as a second point of stenosis in the carotid siphon on the same side. The patient's past history and family history were not remarkable. On admission at UCLA no pulse could be palpated in the upper extremities and in the neck, although faint pulsation could occasionally be felt over the right carotid artery. Blood pressure was obtainable only in the legs where the readings were grossly unequal (right 100/60 mm of mercury, left 140/100).

The patient was alert but had a severe mixed

sensori-motor aphasia associated with some weakness of the right side of the face and of the right upper extremity. Coordination, stereognosis and position sense were severely impaired in the right arm and hand, although the primary sensory modalities were sharply and accurately perceived. The deep stretch reflexes were increased on the right side as compared with the left. Hoffman's sign could be evoked in the right hand but not in the left. Ophthalmodynamometric examination revealed a significant decrease in pressure on the left side. Both optic fundi showed signs of neovascularization, chiefly on the temporal margins. The patient was slightly anemic (11.9 gm per 100 ml) and the blood sedimentation rate was accelerated (33 mm in one hour). Results of all other laboratory tests, including a serologic test for syphilis, were reported within normal limits.

A transfemoral aortogram showed pronounced narrowing of the innominate artery and obstruction

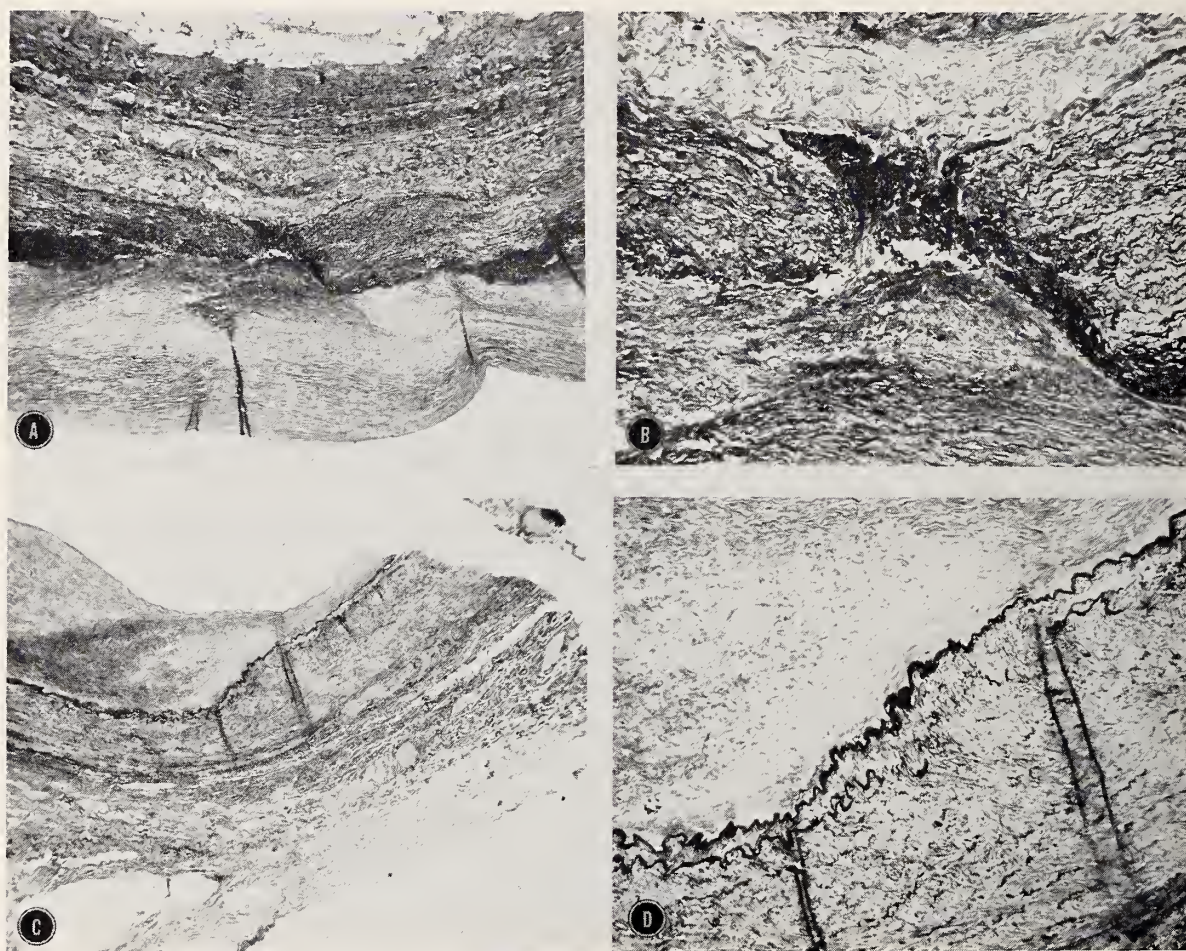


Figure 2.—(Case 1) Microscopic sections obtained from the resected surgical specimen and at postmortem. In *A*, aorta, original magnification 25 \times . There is fibrous thickening of the intima and of the media. The elastic fibers are disrupted and partly replaced by fibrous lamellae. In *B*, the same section is magnified 100 \times . Note the perivascular collections of lymphocytes and plasma cells and the lack of histiocytes and cholesterol clefts. *C* (\times 25) and *D* (\times 100) are sections obtained from the left common iliac artery. Note the similarities in pathologic changes. (Elastic stain.)

of the left subclavian and common carotid arteries. An abundant collateral circulation through vessels in the upper thorax and neck muscles was visualized in the late phases of the study.

After a three-week trial period with anticoagulants and steroids, the patient was operated upon and a bypass bifurcation graft was placed between the ascending aorta and both right and left common carotid arteries. The postoperative period was at first very stormy but eventually the patient recovered and was discharged with considerable improvement. When seen three months after discharge she was perfectly well but a slight hesitancy of speech remained.

CASE 3. A 27-year-old Caucasian woman was admitted at the UCLA Center for Health Sciences in October 1957 with complaint of easy fatigability and of light headedness and faintness on sudden movements. These symptoms had been present for two years.

At age 21 the patient had been found to have elevated blood pressure and at that time the blood pressure readings were grossly unequal between the arms (right 165/85 mm of mercury, left 170/65) and the legs (right 110/80, left 103/70). In addition, pulses in the lower extremities were weak and lagged in time. An angiocardiographic study done in another hospital was reported as showing "intense sclerosis of the ascending aorta." Several of the physicians who observed the patient commented that this was not the "usual type" of coarctation.

On admission at UCLA the blood pressure readings were 220/50 mm of mercury in the right arm and 210/60 in the left. Pulses were full and bounding in the upper extremities but were absent in the lower extremities. Loud systolic and diastolic murmurs were heard over the entire precordial area. An increase in the light reflex as well as segmental arteriolar constrictions were observed in both retinae. Results of the remainder of the general physical examination as well as the neurological examination were not remarkable. Except for hemoglobin of 12.7 gm per 100 ml, all laboratory tests including serologic test for syphilis were within normal limits.

A retrograde aortogram showed severe stenosis of the aortic arch although the main branchings of the arch were well visualized and appeared quite normal. Thromboendarterectomy was performed in early January 1958. At operation the wall of the aorta appeared to be thickened and completely replaced by fibrous tissue. The patient had a benign postoperative course. The blood pressure remained at high level in the right arm but had dropped to 112/90 mm in the left arm. Pulses had reappeared in both lower extremities.

The patient remained asymptomatic for the following four years.

In March, 1962, she had an episode of tunnel vision associated with dizziness. A few weeks later she noted double vision accompanied by light-headedness.

She was readmitted in July, 1962. At that time the blood pressure was 144/0 mm of mercury in the right arm, 72/45 in the left, 150/20 in the right leg and 148/40 in the left leg. The pulses were severely diminished over the left subclavian, left brachial and left radial arteries. A thrill was felt over the right carotid artery and the cardiac silhouette was considerably enlarged. The retinal arterioles had become quite tortuous with segmental "copper wiring," and both retinae had acquired a peculiar sheen. Results of routine laboratory studies were within normal limits.

A transfemoral aortogram showed the repair of the aortic arch in satisfactory condition, but there was moderate stenosis of the descending aorta. In addition, the left subclavian artery and the proximal portion of the left common carotid artery showed a severe degree of narrowing, the latter vessel tapering to a thread. No further studies were contemplated and the patient was discharged to be followed in the out-patient department.

CASE 4. A 23-year-old white woman was admitted in May 1962, with a three-month history of progressive numbness, weakness and aching in the right arm aggravated by exercise. Hanging clothes had become nearly impossible. The patient had also noted a continuous coldness of both feet.

On examination, no pulse could be felt in the upper left extremity, and on the right the radial pulse was barely obtainable. The blood pressure was 128/58 mm of mercury in the left arm and 140/70 in the right arm. On oscillometric studies severely diminished pulsations were noted in both upper extremities, the left arm being worse than the right. The neurological examination was within normal limits but there was an increase in the arteriolar light reflex of the retinae as well as some degree of arteriovenous nicking.

Results of routine laboratory tests were within normal limits.

A retrograde aortogram done May 15, 1962, revealed complete obstruction of the left subclavian artery. The aortic arch proper and the remainder of its branches appeared of normal caliber. In this patient the clinical findings suggested early bilateral vascular insufficiency in the upper extremities. On angiographic examination, however, only one vessel of the aortic arch was found to be involved. The patient was discharged to be followed in the out-patient clinic.

CASE 5. A 46-year-old Negro man, a bus driver, was admitted with chief complaint of inability to use the left arm and the left leg. Two weeks before admission he had a brief episode of clumsiness in the left hand. This was followed two days later by sudden onset of complete paralysis of the left arm and of the left leg. He did not lose consciousness and noted some sensory impairment in the left hand as well.

The blood pressure had been "difficult to obtain" for at least 15 to 20 years, as several examining physicians had commented.

On examination he was found to have no pulses in the upper extremities. The right carotid pulse was barely palpable and the right femoral pulsations very weak. Blood pressure was unobtainable in the right arm and was recorded as 80/0 mm of mercury in the left arm. Evidence of neovascularization was present in both optic discs. The remainder of the general examination was within normal limits.

On neurological examination, total flaccid paralysis of the left arm and severe paresis of the left leg were noted. All sensory responses on the left side of the body were diminished. There was a left sided reflex preponderance with an extensor sign on that side.

The blood sedimentation rate was 36 mm in one hour. Serological tests for syphilis were positive on two separate occasions; however, the result of a Treponema immobilization test (TPI) was negative, showing the absence of specific antibodies for syphilis.

At angiography the patient was found to have a complete occlusion of the left subclavian and innominate arteries. The left common carotid artery filled rapidly and directly whereas the other cervical vessels had a delayed, retrograde filling via collateral circulation.

On August 6, 1962, endarterectomy of the innominate artery was performed. At operation the vessel was found to be hard, pulseless and inflamed. Following removal of the thrombus there was brisk back-bleeding. Within two weeks the patient had considerable return of function. Pulses had returned in the right arm and over the right carotid artery. Two months after the operation he could walk with a mild degree of dragging of the left leg. The left arm, however, showed only 10 to 15 per cent functional recovery.

CASE 6. A 22-year-old white woman, a college student, was admitted in August 1962 for evaluation of a right sided weakness and dysphasia of three months' duration.

At age 17 she had had migratory pains and tenderness in both calves for six or seven days. Then profound weakness of the right arm and leg,

associated with aphasia, developed. She recovered partially from this episode but had several recurrences, and once had transient paralysis of the left side of the body. Because of persisting tenderness of the calves, peripheral vascular disease was suspected and an arteriographic study was performed. The left peroneal artery was found to be irregular and severely narrowed. Three months before the present admission she had had severe left periorbital headache, then within two hours had again become completely aphasic with paralysis on the right side. A right homonymous hemianopsia and right extensor plantar response were also present at that time. Bilateral carotid angiography done at another hospital revealed a considerable narrowing of both left common and left internal carotid vessels. There was in addition a complete obstruction of the internal carotid artery in the siphon region. An aortic arch study did not show any other abnormalities.

On admission at UCLA the patient showed signs of moderate right spastic hemiparesis. She spoke very slowly and could read only simple sentences. No pulses could be felt in the left leg, and the left carotid artery could not be palpated. On oscillographic examination, pronounced decrease of the pulse pressure in both lower extremities was noted. There was increased vascularization of the left optic fundus and an incongruous right visual field defect.

The blood sedimentation rate was 25 mm in one hour. The results of a serologic test for syphilis and of several lupus erythematosus cell preparations were negative. Other laboratory studies were all within normal limits.

The various roentgenographic contrast studies which the patient had had in the past were reviewed. It was believed that she had a form of generalized arteritis affecting primarily the larger vessels.

Discussion

The historical evolution of Takayasu's disease has been accompanied by several erratic and paradoxical features: Although very precisely described in 1856 by a London physician, the illness remained completely ignored for 50 years. Then it reappeared in Japan and was given the name of Takayasu—who never really described a single case. More cases were reported from Japan and for a time the disease was believed to be endemic to the Far East; but in the last ten years the condition has been seen all over the world.

When Takayasu's disease was "introduced" to the western world literature in the late 1940's, it was at once confused with a related condition, the aortic syndrome (although this syndrome had also been well recognized a hundred years before). In the following decades a variety of terms were used to designate either entity. Some, such as *Martorell's*

syndrome,¹⁰ were completely unjustifiable; others were descriptive misnomers, *brachiocephalic arteritis* for instance.¹²

Takayasu's disease was finally properly reidentified in 1954 by Ask-Upmark almost one century after Savory's original report.

The incidence of neurologic manifestations in Takayasu's disease had not been emphasized in previous studies. From the reports published by Currier and coworkers⁶ and Frövig and Löken¹¹ one could estimate that nervous system involvement occurred in perhaps 30 to 50 per cent of the cases. Even with this ratio, since Takayasu's disease had been reported almost exclusively in young females, a population group where symptoms of cerebrovascular insufficiency are most uncommon, one would have expected this unlikely situation to attract the attention of the neurologist. It was therefore quite surprising to note as late as 1954⁶ that no report had ever been published specifically dealing with the neurological manifestations of Takayasu's disease.

In the present series, five of the six patients had either moderate or severe central nervous system deficit (Table 1). It is possible that careful examination in new cases of Takayasu's disease will elicit neurological manifestations in a higher proportion of patients than heretofore.

The "classical" anatomical involvement described in this condition, arteritis of the aortic arch and its primary branches, would in fact suggest that neurological symptoms ought to be the rule rather than the exception.

Historically Takayasu's disease was defined as an idiopathic arteritis. Considerable evidence has accumulated suggesting that it is an autoimmune disorder. Accelerated sedimentation rate, abnormal serum proteins, increase in serum gamma globulin and low grade fever have been recorded in many cases.^{1,14,19} Of great interest is the laboratory finding of a positive serologic reaction for syphilis combined with a negative TPI test result, as was found in Case 4 of this series and Case 1 in Judge's series. This combination effectively rules out luetic infection as a possible etiologic precursor; and, far more important, it brands the positive serologic result as a biological false positive (BFP). According to Catterall,⁴ 60 to 70 per cent of BFP reactors develop signs and symptoms of a collagen disease within five years. This high proportion of cases of "collagen disease" in BFP reactors renders the combination of positive serologic test and negative TPI test a useful adjunct in the study of Takayasu's disease. It might be observed that the BFP reaction is an anomalous and paradoxical response.

In Case 6 of this small series, the pathologic changes by-passed the aortic arch proper and began

TABLE 1.—Incidence of Central Nervous System Manifestations and of Peripheral Vascular Disease in Six Cases of Takayasu's Arteritis

Case	Age and Sex	Central Nervous System Manifestations	Evidence Seen of Peripheral Vascular Disease Beyond the Aortic Arch and Its Primary Branches
1.....	43 ♀	Moderate.....	at postmortem
2.....	19 ♀	Severe*.....	angiographic
3.....	27 ♀	Moderate.....	clinical exam
4.....	23 ♀	Absent.....	clinical exam
5.....	46 ♂	Severe*.....	clinical exam
6.....	22 ♀	Severe*.....	angiographic and clinical exam

* Indicates central nervous system involvement as presenting feature and with subsequent permanent residua.

in secondary and tertiary vessels (carotid and popliteal arteries). The age of the patient, the physical findings and the laboratory data in this case had ruled out syphilis, arteriosclerosis and hypercholesterolemia, the usual points of differential diagnosis. An angiographic study eventually revealed an involvement of the entire carotid system bilaterally. The lack of systemic symptoms over a period of five years precluded the possibility of a more generalized disease of autoimmunity. This case of "scattered" arteritis was therefore included in the series. Furthermore a careful review of the other five cases (Table 1) revealed that indeed in every one of them there was evidence of peripheral vascular disease beyond the aortic arch and its branches. An analysis of the case histories in the literature further confirmed that not uncommonly the arteries of the lower extremities are involved in the disease process as well.^{1,14,15} Ask-Upmark reported that 50 per cent of patients with Takayasu's disease had elevated blood pressure in the lower extremities. He postulated that renal ischemia secondary to renal artery disease was the likely mechanism.²

Finally, although it is probable that the ophthalmological changes described in the original Japanese reports were due, for the most part, to stenosis or obstruction of the aortic arch or common carotid arteries, it is not inconceivable that in some cases a more peripheral site of constriction was present, for instance in the internal carotid or in the ophthalmic artery.

Thus the disease process, a disorder of autoimmunity, seems to be specific to large and medium sized arteries. It is, however, not limited to the aortic arch and its branches. The relatively high frequency with which the aortic arch and its tributaries seem to be involved may be due to the severe hemodynamic stresses existing just distal to the heart. This fact was elaborated upon by Ask-Upmark² and Judge and his associates.¹⁴ It can also be suggested that the signs and symptoms develop-

ing from such an involvement are spectacular and more likely to be observed and reported.

The pathological findings observed in Case 1 of the present series conform exactly to those noted in previous reports.^{13,14} There was a progressive panarteritis leading to gradual narrowing and obliteration of the lumen of the involved vessels. However, in opposition to the opinion expressed by Judge and his associates¹⁴ and others,^{1,2,3,15} I believe that the disease process is widespread. The patient in Case 1 had postmortem evidence of left common iliac artery disease. Case 4 of Judge's series was described as having "minimal evidence of subintimal fibrosis and medial hypertrophy of the gastric, colic and pelvic arteries."

The clinical impression of a "scattered" arteritis gained from the present study, as well as from previous case reports, is therefore substantiated.

As to the criteria for the diagnosis of the illness, the term *Takayasu's disease* (or arteritis), obtained from usage, ought to be retained and be taken to cover the following:

1. Polyarteritis of unknown cause but likely to belong to the group of autoimmune diseases.

2. Anatomical distribution of the arteritis predominantly around the aortic arch and its branches, but not exclusively so. Intracranial vessels and arteries of the lower extremities can be involved separately, even early in the disease.

3. A strong female predominance with a sex ratio of 10:1. The age of onset is usually in late teens or in the third decade.

4. Absence of systemic symptoms such as would be found in periarteritis nodosa or lupus erythematosus.

5. Neurological symptoms—which may herald the disease in over 50 per cent of the cases.

6. Signs and symptoms including:

Absence of pulses in the upper part of the body (arms, neck, head), and occasionally in the lower extremities. Correspondingly, the blood pressure may be unobtainable or very diminished in the arms or legs or both (90 per cent of the cases).

Evidence of cerebrovascular insufficiency (dizzy spells, transient hemiparesis, amblyopia fugax and so on) usually in the "territory" of one carotid artery (50 per cent of the cases). The neurological manifestations of this vascular insufficiency may be quite severe and remain as permanent deficits.

Increased blood pressure in the lower extremities (50 per cent of the cases²).

Ophthalmological changes compatible with a chronic hypoxia of ocular structures (50 to 70 per cent of the cases¹⁸).

In addition a number of less specific findings listed by Ask-Upmark—ischemia of the upper half of the body, development of collateral circulation, carotid sinus syncope and cardiac symptoms.

7. Ancillary findings (supporting the diagnosis) such as: elevated sedimentation rate, abnormal electrophoretic pattern of serum proteins (both found in 90 per cent of the cases)^{1,14,15}; occasionally slight elevation in body temperature; elevated leukocyte count (rare), positive lupus erythematosus cell preparation (rare), the combination of a positive reaction to serologic test for syphilis and a negative TPI test (rules out syphilis and strongly suggests the presence of a collagen disease).

As a part of the diagnostic study, angiographic survey should be carried out to determine the sites of the vascular involvement.

The treatment of Takayasu's disease has been discussed previously.^{8,9} Although fatal, the disease process may be retarded by surgical reconstruction of the diseased vessels or conservative medical therapy.

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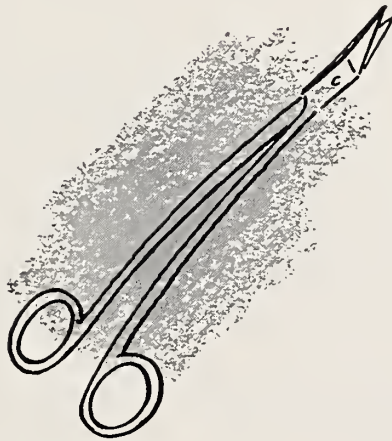
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Thyroid Operations

A Review of 364 Consecutive Cases

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■ *Three hundred sixty-four operations on the thyroid gland done in a five year period (1956-1961) in two private suburban Los Angeles Hospitals were reviewed. Two hundred twenty-three of the operations were done for the treatment of solitary nodular goiter (clinical diagnosis). Twenty-three cancers were found, an incidence of 10.5 per cent. Only one cancer was definitely diagnosed preoperatively.*

Multinodular non-toxic goiters were diagnosed clinically in 39 cases and two cancers were present. Cancer was not found in the 23 cases of nodular toxic goiter.

Graves' disease was treated surgically in 35 cases, or almost 10 per cent of the total series. In four the microscopic appearance of Hashimoto's thyroiditis was present.

Thyroiditis was diagnosed by the pathologist in 51 instances, or about 14 per cent of the series. It was Hashimoto's thyroiditis in 40 cases. Three cancers were found associated with Hashimoto's thyroiditis.

There was nothing definitely diagnostic about the protein-bound iodine test or the I^{131} uptake test or scan in nodular goiter, thyroiditis or cancer. Cancer was found in six "cold" nodules, in one hypofunctioning nodule and in one "warm" nodule. Cancer was not found in any cases clinically diagnosed as toxic nodular goiter.

The clinical accuracy of the preoperative diagnosis was 70 per cent for solitary nodular goiter and 90 per cent for multinodular goiter. Only three cases of Hashimoto's thyroiditis were definitely diagnosed preoperatively. Needle biopsy was not done.

Eighty-six per cent of the cancers were papillary, mixed or follicular; 14 per cent were anaplastic. In 24 per cent of the cases of cancer there was local invasion or metastasis to lymph nodes, lung or bone by the time operation was done.

THYROID NODULES appear clinically in approximately 4 per cent of the adult population.^{13,19} Consecutive autopsy studies^{11,12} show macroscopic thyroid nodules in over 50 per cent of the adult population. Many of these nodules are less than one centimeter in diameter and are not reported clinically. The incidence of benign thyroid nodules approximates the age decade in percentage.¹¹ About one half of these nodules are benign thyroid adenomas, and the other half are involutinal thyroid nodules, occurring as the result of repeated thyroid stimulation followed by return to the resting or colloid stage.¹¹

The incidence of clinically detectable thyroid cancer is two to four times higher in women than in men.^{13,19} Occult thyroid cancer is found in up to 2 per cent of routine autopsy studies of the thyroid gland.¹³ There is a decided disparity between the incidence of thyroid cancer in nodular goiter and deaths from thyroid cancer.¹

Thyroid nodules are rare in children and increase in frequency with each decade.¹² The incidence of thyroid cancer in children with a thyroid nodule under the age of 14 years is 50 to 70 per cent. There was a history of previous exposure to ionizing irradiation in 47 per cent of one group.⁸ Exposure to x-ray does not appear to result in thyroid cancer in adults.¹²

Cancer in non-toxic multinodular goiter has been reported to range in frequency from 4 to 24 per cent in adults.^{5,6,9} However, most series indicate an incidence of between 8 and 20 per cent.¹³

An increasing incidence of Hashimoto's thyroiditis and an incidence of cancer in this disease ranging from 6.6 to 17.7 per cent^{6,14,15} have been reported. Several thyroid clinics have been unable to verify this.¹³

Thyroid nodules have been reported in young adults treated for Graves' disease with I¹³¹.¹⁷ The nodules appeared five to 14 years after the patients received the treatment.

Scintiscanning^{2,10} has been of some value as an indicator of which cases are most likely to be malignant. The "cold" and hypofunctioning nodules are the most suspicious, cancer occurring in about 20 per cent. However, cancer has been reported in functioning and hyperfunctioning nodules.^{3,10,13}

Russell¹⁶ subserially sectioned 80 thyroid glands with cancer and found that 70, or 87.5 per cent, extended either into the isthmus, the opposite lobe, the pericapsular lymphatic chain and sometimes to two or all three of these areas.

Clark⁴ found intraglandular dissemination in 88 per cent of 46 cases of thyroid cancer. Thyroiditis

was present in 18 per cent of the cases. Adenomas were present in 53 per cent of 60 cases of thyroid cancer.

Bearhs³ found a 4.8 per cent incidence of thyroid cancer in over 5,000 cases of nodular goiter in which operation was done. Of more than 3,000 patients who had thyroidectomy because of non-toxic nodular goiter, 7.5 per cent had cancer. A cancer unsuspected clinically was found in 3.8 per cent of patients operated upon. Cancer was found in 1 per cent of more than 2,000 cases of adenomatous goiter with hyperthyroidism and in 0.5 per cent of 3,000 cases of exophthalmic goiter.

Multicentricity of thyroid papillary cancer has been reported in 10 per cent of a total group,¹⁸ and in almost one-third of patients from four to 25 years old. A second focus of cancer was found in 32 per cent when both thyroid lobes were removed. In 3.7 per cent of cases in which total lobectomy was done for thyroid cancer, cancer developed in the remaining lobe.

A Clinico-Pathologic Review

This communication is a clinico-pathologic study of 364 consecutive thyroid operations done by the surgical staffs of Daniel Freeman and Centinela hospitals, Inglewood, California. This study covers the period from July 1, 1956, through June 30, 1961.

Solitary non-toxic nodular goiter (clinical diagnosis). Two hundred twenty-three thyroid operations, or approximately 60 per cent of the total, were done for solitary non-toxic nodular goiter. Twenty-three cancers were found in this group, an incidence of 10.4 per cent. The diagnosis of cancer was definitely made preoperatively in only one case, and was erroneous in two cases. The erroneous diagnosis in both instances was based on a history of previous thyroid cancer. The nonmalignant nodules included fetal adenomas, Hurthle cell adenomas, fetal and colloid adenomas, papillary cystadenomas and colloid cysts.

Solitary toxic nodular goiter (clinical diagnosis). Operation was done in 19 cases of solitary toxic nodular goiter. This diagnosis was based on two criteria: (1) A hyperfunctioning nodule on a thyroid scintigram; (2) the clinical diagnosis of hyperthyroidism without exophthalmos in a patient with a solitary nodule and an associated elevated protein-bound iodine content or an elevated 24-hour I¹³¹ uptake. A single test showing elevated protein-bound iodine was not considered sufficient for diagnosis without confirmatory signs.

No thyroid cancers were found in this group. The age group was approximately 20 years older than it was for patients treated surgically for Graves'

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disease. These patients were prepared for operation with either an iodine solution or one of the thiourea group of drugs.

Multinodular non-toxic goiters and large colloid goiters (clinical diagnosis). Twenty-nine patients with multinodular non-toxic goiter and ten with large colloid goiter had thyroidectomy. In these 39 cases, two cancers were found, or an incidence of about 5 per cent. Operation was done primarily because of the size of the goiter, because of substernal extension or for relief of pressure symptoms. One of the malignant lesions was an anaplastic cancer arising in a large colloid goiter of 35 years' duration. This cancer invaded the trachea and esophagus and caused the patient's death one year after total thyroidectomy and x-ray therapy.

Multinodular toxic goiter (clinical diagnosis). Operation was done in only four cases in which toxic multinodular goiter was clinically diagnosed. Cancer was not found in any case. These cases were in elderly persons with evidence of cardiac damage due to hyperthyroidism of long standing. The preoperative preparation was with either an iodine solution or one of the thiourea group of drugs.

To summarize, no cancers were found in the group of patients with nodular toxic goiter, either solitary or multinodular.

Graves' disease (clinical diagnosis). Subtotal thyroidectomy was performed 35 times for Graves' disease. The youngest patient was 14 years old, the oldest 52. Most of the patients were between 20 and 40 years old. Twenty-nine were females, six were males. (The author has no way of knowing how many patients in this age group are being treated with radioactive iodine in this community.)

Patients with the milder cases of Graves' disease were prepared for operation with an iodine solution. In the more "toxic" cases, one of the thiourea group of drugs was used.

A diagnosis of cancer of the thyroid gland was made in one case by two of three pathologists, the third disagreeing. The incidence of cancer in Graves' disease is known to be very low.

The one death in the entire group of 364 cases occurred in a patient with Graves' disease. Death was thought to be due to respiratory obstruction following a postoperative hemorrhage which was not stopped promptly enough.

Four patients with Graves' disease, after being made euthyroid with either iodine or a tapazole-iodine combination, were reported by the pathologist to have Hashimoto's thyroiditis. It is known that hyperthyroidism may be an early phase of Hashimoto's thyroiditis.¹³

Thyroiditis (pathologic diagnosis). Thyroiditis was reported in 51 of the 364 surgical cases, an in-

cidence of about 14 per cent. It is the author's impression that there is an increasing incidence of Hashimoto's thyroiditis. The preoperative diagnosis of thyroiditis was definitely made in only three cases. In five cases in which the preoperative diagnosis was "?thyroiditis, ?cancer," the pathologic diagnosis was granulomatous thyroiditis in one case, Hashimoto's thyroiditis in two cases, fetal and colloid adenoma in one case and anaplastic carcinomas in one. Hashimoto's thyroiditis was found in 40 of the 51 cases in which the pathologist's diagnosis was thyroiditis. The most common clinical diagnosis in these 40 cases of Hashimoto's thyroiditis was solitary or multinodular goiter.

Riedel's struma appeared in three cases, subacute and chronic lymphocytic thyroiditis in three and subacute thyroiditis in a nodular goiter in five cases.

Needle biopsy was not used by the surgeons who did the 364 operations. A review of diagnostic tests that were used in these cases was carried out. There was nothing diagnostic of thyroiditis in the protein-bound iodine test, or the I^{131} uptake test or in scintiscanning. For example, in the cases in which a protein-bound iodine test was done preoperatively, the result was within normal limits in 16 cases, low in three cases and high in two cases. Uptake of I^{131} was low in five cases, normal in two cases and high in two. There is nothing diagnostic about the I^{131} uptake test before and after stimulation with thyroid-stimulating hormone.¹³

Cancer was found in three of the forty cases of Hashimoto's thyroiditis, an incidence of about 7 per cent.

There is an association between Hashimoto's thyroiditis and thyroid adenomas. Adenomas were present in 27 of the 40 cases of Hashimoto's thyroiditis, and in one case thyroid cancer was present.

In 23 cases in which the clinical diagnosis was nodular goiter and no nodules were found by the pathologist, the diagnosis was Hashimoto's thyroiditis.

Substernal goiter. Substernal goiter occurred in 13 of the 364 cases of thyroidectomy. In two cases there was retrotracheal extension of goiter, and in one it was completely intrathoracic.

The Accuracy of Clinical Examination

The accuracy of the examiner in diagnosing nodular goiter clinically was compared with the pathologist's findings.

The clinical diagnosis of solitary nodular goiter was correct in 165 of 223 cases, an accuracy of approximately 74 per cent. Eleven cancers were found in this group.

Multiple nodules were reported by the pathologist in 78 cases in which the clinical diagnosis was

solitary nodular goiter. Nine cancers were found in the group.

Multinodular goiter was found to be correctly diagnosed clinically in 38 of 43 cases or about a 90 per cent accuracy.

There were no cancers in five cases in which the clinical diagnosis was multinodular goiter, and the pathologic diagnosis was solitary nodular goiter.

Cancer was not found in any of the surgical specimens in which nodularity was not obvious clinically, nor in 14 cases in which nodules were found by the pathologist.

Medical Treatment Failures

Twenty-three patients with nodular non-toxic goiter had been treated for varying periods of time with sodium liothyronine (Cytomel®) or thyroid extract. One patient with Riedel's struma had been receiving cortisone for nine months and had also received thyroid extract and x-ray therapy to the thyroid gland without relief of symptoms. One patient with Graves' disease had received I¹³¹ therapy before subtotal thyroidectomy.

Secondary Thyroid Operations

Twenty-five of the thyroid operations in this series (7 per cent) were the second, third or fourth such operations. In five instances they were for persistent thyroid cancer. Cancer was found at the first and second operations three times. It was found at the second operation but not in the first in two cases.

Complications of Operation

There was one operative death in 364 cases. One patient had unilateral recurrent nerve paralysis, one had a large hematoma and three had mild post-operative bleeding. Auricular fibrillation occurred in two instances. One patient had transient tetany after operation. Parathyroid tissue was not reported by the pathologist in this case.

In 21 cases, the pathologist reported one parathyroid gland removed, and in seven cases two parathyroid glands. Total thyroidectomy was done in only 3 per cent of the 364 cases.

Thyroid Cancer

Thyroid cancer was present in 25 of the 364 patients operated upon. All were found in cases of non-toxic nodular goiter. In one case it could not be determined whether the cancer was primary or metastatic. There was one questionable cancer in a case of Graves' disease. Two patients had previously had thyroid cancer removed surgically, and were found to be free of it at the last operation.

Papillary cancers occurred in 11 cases, papillary and follicular cancers in six cases, follicular cancers in four, undifferentiated cancers in three, question as to whether the cancer was primary or metastatic in one case, and one questionable cancer in a case of Graves' disease.

Additional disease was found in thyroid glands with thyroid cancer. Hashimoto's disease occurred in three cases and thyroid adenomas in six cases. Cancer appeared to arise from thyroid adenomas twice.

Scintigrams in the Diagnosis of Thyroid Cancer

With one exception, in all cases in which a thyroid cancer was found and an I¹³¹ uptake test and scintiscanning were carried out, there was either a "cold" or a hypofunctioning ("cool") nodule. The one exception was a functioning ("warm") nodule. Adenomas, Hashimoto's thyroiditis, colloid cysts and calcified areas in the thyroid gland also showed up as "cold" or "cool" nodules, and there was nothing diagnostic about the scintigram, except that cancer was not found in thyroid glands with hyperfunctioning "hot" nodules.

Cancer was present in six cases in which the nodules were "cold," in one case in which the nodule was "cool," and in one case in which the nodule was "warm."

In six of the 25 cases of cancer metastasis to the cervical lymph nodes had occurred, in one to the mediastinal lymph nodes and in one to lung and bone. One cancer invaded the trachea and esophagus, and ultimately a metastatic lesion developed in the area about a thyroidectomy incision which had received x-ray therapy postoperatively. Four thyroid cancers invaded the thyroid capsule, adjacent lymph nodes or blood vessels. Various combinations were present.

It would appear that our hospital pathologists are not over-diagnosing thyroid cancer. It is quite likely that in certain cases of clinically nodular goiter, conservative treatment was carried out too long.

In two cases there was cancer in both lobes of the thyroid gland. However, this may not be the true incidence, as both lobes were removed in only seven cases.

The surgical procedures were quite variable. The following procedures were done for thyroid cancer: Total thyroidectomy, seven times; subtotal thyroidectomy, four times; total lobectomy and isthmectomy, 12 times; removal of prethyroid muscles with lobectomy, one time; biopsy of cervical lymph nodes or radical neck resection, three times; removal of the mediastinal lymph nodes, two times.

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Use of Ileac Segment Conduits in Urological Operations

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■ *The cases of 50 patients in whom ileac segments were utilized in urological operations were reviewed. The complications were more prevalent in patients with malignant disease. The results were particularly gratifying in children with neurogenic vesical dysfunction. Evisceration was the most common of the serious immediate complications. The results were as good in cases in which the ureters were not "splinted" as they were when splinting catheters were used. Four deaths were recorded during the hospital stay. Overall, the procedure was thought to be satisfactory in the management of otherwise serious, and often hopeless, urologic problems.*

IN 1950 Bricker^{1,2} brought attention to the use of ileac segments as a means of urinary diversion. It has since become a well established surgical procedure.

The results encountered have been reviewed by a number of investigators.^{3,4,5,6,7}

The purpose of this communication is to report the experiences by groups of urologists and residents in non-University hospitals.

Since 1953, ileac segment operations have been done in 50 cases in the San Diego area.* Data on diagnosis in these cases are shown in Table 1.

*Cases were offered by Doctors R. J. Prentiss, R. B., Mullenix, M. J. Feeney, G. E. Howe, Sam Peck, E. LeDuc, E. V. Moore, J. Hayward, R. T. Plumb, J. Dillon, V. Haynes, F. Carter, R. Lawton.

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Ileac diversion was done in 21 cases for carcinoma of the bladder either in conjunction with cystectomy or because of lower ureteral obstruction. In eight cases it was done for carcinoma of the

TABLE 1.—*Diagnosis in 50 Cases in Which Ileac Segment Operations Were Done for Urinary Diversion*

Malignant disease	32
Bladder	21
Cervix	8
Uterus	1
Urethra	1
Prostate	1
Non-malignant disease	18
Neurogenic bladder	7
Congenital vesical neck obstruction.....	7
Cystinuria with recurrent calculi.....	1
Interstitial cystitis	2
Obliterated ureter	1

TABLE 2.—*Ileac Segment Diversion Procedures Done in 50 Patients*

Uretero-ileostomy	42
Uretero-ileo-cystostomy	2
Pyelo-ileostomy	2
Pyelo-ileo-cystostomy	2
Pyelo-ileo-ureterostomy	1
Ileocystoplastic procedure	1
	50

TABLE 3.—*Complications Associated with Ileac Segment Procedures in 50 Cases*

Early—	
Eviscerations	4
Bowel obstruction	4
Wound infection	8
Segment-artery fistula	1
Perforated peptic ulcer	1
Uretero-ileac leakage	1
Ileus	2
Ileocutaneous fistula	1
Brachial artery occlusion	1
Pyelonephritis	2
Bleeding from suture line	1
Skin irritation	3
Pelvic abscess	1
Subphrenic abscess	1
Thrombophlebitis	1
Late—	
Calculus disease	6
Bowel obstruction	2
Elongation of segment	2
Uretero-ileac stricture	3
Ileocutaneous fistula	1
Ileac segment obstruction	1
Pyelonephritis	5
Abdominal abscess	3
Skin irritation	3
Incisional hernia	1

cervix and all of the patients had received previous radiation therapy. The procedure was done either in conjunction with a pelvic exenteration or because of the complications of radiation therapy. In one case of carcinoma of the prostate with a urethrectal fistula the operation was done for palliative purposes.

In most of the non-malignant cases in children the procedure was done because of neurogenic bladder dysfunction or congenital vesical-neck obstruction with advanced hydronephrosis. One patient had obliteration of the proximal ureter associated with a renal calculus and a scarred obstructed ureteropelvic junction. She had had pyeloplastic operation previously.

The procedures done are listed in Table 2. The majority of operations were uretero-ileostomy of the standard Bricker type. One ileocystoplastic procedure was done for interstitial cystitis. The remaining operations were variations of ureteral substitutions.

The rate of complications, major and minor, early and late, is high with these procedures. Complications in the present series are shown in Table 3. Eviscerations occurred in four cases, all in patients with carcinoma. Bowel obstruction occurred in two patients with malignant and in two with benign lesions. Wound infection occurred in eight cases.

There were no cases in which reoperation was required in the early postoperative period for uretero-ileal anastomotic obstruction. However, obstruction did develop in three cases as a late complication. Elongation of the ileac segment made reoperation necessary in two patients.

In all, complications occurred in 72 per cent of the patients. The rate associated with operations done by residents was 81 per cent; with operations by the attending staff, 69 per cent.

There were four deaths during the period in hospital for operation. The causes were as follows:

1. Cerebrovascular accident, five days after operation in a 65-year-old woman with bladder carcinoma.
2. Bronchopneumonia, 15 days after operation in a 75-year-old woman with interstitial cystitis.
3. Peritonitis following bowel obstruction with perforation, 28 days after operation in a 75-year-old woman with carcinoma of the cervix and a vesico-vagino-rectal fistula (post-radiation).
4. Metastatic prostatic carcinoma, 31 days postoperative in a 55-year-old man.

Method

The technique used in the construction of the cutaneous uretero-ileostomy was essentially that outlined by Bricker² and restated by Stamey and Scott.⁷ There were many minor variations, the present series being a compilation from 13 urologists. Appendectomy was done if the appendix was still present. A segment of ileum was isolated at least two vascular arcades from the ileocecal valve and enteroenterostomy was done with a two-layer closure. Then, using a mucosa to mucosa stitch, the uretero-ileostomy was performed with interrupted small catgut sutures. Usually several reinforcing sutures between ileal serosa and ureteral adventia were placed. In some cases the ureters were beveled, in others not. The use of splinting catheters is controversial. They were used in 30 cases, not used in 20. A mid-line or rectus incision was made in 47 cases, a low transverse incision (for cystoprostatectomy) in two, and a high transverse incision for pyelo-ileo-ureteral anastomosis in one.

In only one case was an attempt made to close the right lateral gutter adjacent to the ileac conduit. The ileac segment was placed directly through

the right lower quadrant after a full thickness of abdominal wall had been removed. The abdomen was usually closed with running chromic in the peritoneum and interrupted heavy figure-of-eight catgut or steel wire sutures in the rectus fascia.

Interesting Cases

Several of the cases were particularly interesting:

1. A 22-year-old man with cystinuria had, in September 1961, a left pelvio-ileo-cystostomy because of the passage of recurrent large cystine calculi from the left kidney. A 30 cm piece of ileum was used. In December 1962, operation was done because of lower abdominal pain associated with a large amount of residual urine (700 ml) and the demonstration of vesico-ileac reflux. At that time 20-25 cm of small bowel segment was removed and a valve was fashioned with an intravesical ileac cuff at the cystostomy. A Y-V plastic procedure was done on the vesical neck to aid in free voiding. After healing there was no vesico-ileac reflux, residual urine was 20 ml and there was no pain.

2. A 41-year-old woman with carcinoma of the cervix had received radiation therapy. In September 1962 a pelvic exenteration with a cutaneous uretero-ileostomy and a colostomy were performed. Six weeks later she died at home of loss of blood from a fistula between the right common iliac artery and the ileac segment.

3. A 9-year-old girl with congenital bladder-neck obstruction, surgically absent left kidney and increasing hydronephrosis on the right had a right pyelo-ileo-cystostomy in conjunction with a Y-V plastic procedure at the vesical neck. Seven weeks later, a nephrostogram showed obstruction of the segment. Lysis of the adhesions and catheter splinting corrected the problem.

4. In a 19-year-old man, a quadriplegic with recurring bouts of pyelonephritis and calculi formation, anastomosis of both renal pelves to an isolated loop of ileum was carried out. The distal end was then brought out the right side of the abdomen. Subsequently, multiple complications developed, including bowel obstruction and gastric ulcers with bleeding and perforation. The patient died. The conduit had functioned well. At the time of autopsy, the anastomosis at all points was patent.

Discussion

Complications associated with malignant disease were more severe than with the non-malignant lesions. In children with neurogenic vesical dysfunction, the postoperative course was often un-

complicated and the results excellent. The children with congenital vesical neck obstruction and advanced upper tract disease did less well. Many had severe complications. However, several had been classified as hopeless renal cripples before operation.

Although the procedures were done by 13 urologists, the basic principles in bilateral cutaneous uretero-ileostomy were similar with few exceptions. More than half of the patients had ureteral splinting using rubber Bardam catheters, sizes 8 to 12 (French). There were about equal numbers of uretero-ileostomy leakage and ureteral strictures in both groups. Ureteral stricture developed in one case in which splinting was used; in two cases in which splints were not used. In another case in which a splint was used, leakage occurred at the uretero-ileac anastomotic junction.

Since evisceration did not occur in cases in which the transverse incision was used, this opening would seem to be preferable to a midline or a rectus incision. Moreover, in light of the fact that evisceration did not occur in any case in which retention sutures were placed in the primary closure, the use of heavy wire retention sutures through all layers is advised in all cases of carcinoma.

When possible, the ileac segment should form a mucosal cuff at the point of anastomosis to the skin, as use of the appliances for the collection of urine seems to be easier when there is a projection of ileum beyond the skin margin.

Our combined experiences indicate that ileac segment surgery is a suitable method of urinary diversion in properly selected cases. It can be used to replace the ureter or as a conduit in place of the bladder where long term diversion is anticipated.

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Emulsion Therapy for Allergic Disease

Clinical Results with Use of Small Volumes

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■ *In a series of cases in which emulsion repository desensitization therapy for allergic disease was carried out, the amount of emulsion injected was, for a time, one milliliter. Then, for a second period, the volume was reduced to 0.5 milliliter, and minor refinements of technique were introduced. Many of the patients treated in the first period were also treated in the second.*

The incidence of untoward reaction, ranging from mild soreness to the development of draining cysts at the site of injection into the arm, was greatly reduced between the first and second periods.

EMULSION REPOSITORY therapy has been used in recent years by over 500 allergists in the specific treatment of allergic diseases.⁴

A direct outgrowth of the work of Freund and McDermott^{2,3} and later the independent work of Loveless⁶ and Brown,¹ this method utilizes specially treated highly refined mineral oil and a saponifier, Arlacel-A, to incorporate large amounts of antigenic materials. The resulting water in oil emulsion makes for a slower release of these materials giving protection to the patient over a longer period.

This communication reports one aspect of the authors' clinical experience with this relatively new method in almost 2,000 injections given to 315 patients over a period of approximately three years. The three years was divided into two periods, one from April 1961 to March 1963 and the other from April 1963 to March 1964. This division was made because in April 1963 we instituted several changes in technique, the most important of which was the reduction of the volume of the injected emulsion from 1.0 to 0.5 milliliters.

Methods and Materials

The materials and preparation of the emulsions remained unchanged during the two periods under discussion. The patients were carefully selected from our private practice, the basic criterion being failure to respond to aqueous hyposensitization. Almost all the materials were purchased from Center Laboratories. This included the Daroil,[®] a 65 per cent-35 per cent mixture of refined, specially treated mineral oil, and Arlacel-A, a saponifier.

The emulsions were prepared according to the

techniques of Brown. They contained much smaller dosages of antigens than most investigators use. An emulsion of oil and water in equal amounts was prepared by hand mixing followed by overnight periods of rest and refrigeration, then at least two periods of mixing on the Brown emulsifier for at least 50 minutes. On the day of injection mechanical mixing was done for an additional 20 minutes. Each treatment dose was then subjected to mechanical and microscopic examination by one of us, and emulsions that did not measure up to predetermined standards—complete emulsification with no free aqueous phase—were discarded.

In all cases the treatment was administered by the physician. No preparation of the skin was attempted. The patients were instructed not to ingest alcohol or sea food for 24 hours before and 24 hours after the injection. In the first of the two periods of this study, antihistamines were given before and after the injections of emulsion. This precaution was discarded during the second period. Patients were cautioned to avoid strenuous exercise and local trauma for 24 hours after treatment and were told to expect soreness of the arm for two or three days.

In every case the first dose contained very small amounts of antigenic materials and it was followed three to four weeks later by a therapeutic dose, about three times larger than the first. Injections were made in the upper arm, alternately in the lateral and the medial aspects and in some cases alternately between the left arm and the right.

Results

In both periods we included as reactions all untoward effects either actually seen by us or reported by the patient. This probably resulted in a higher

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incidence of reported reactions since emotional, subjective opinions of the patient were included. The investigational nature of the program and the possibility of soreness in the arm, a temporary lump and even an increase of symptoms were discussed with every patient before treatment.

In the first period, in which almost 1,200 injections were given, there were 20 "reactions," and incidence of less than 2 per cent. Seven of the reactions were transient soreness of the arm or the presence of a lump for 48 hours or more. The constitutional reactions included four episodes of urticaria, two of them in the same patient and all quickly relieved by one administration of antihistaminic agents. In three patients acute bronchospasms occurred within a few hours of the injection; all were promptly relieved by a single dose of epinephrine or Tedral.[®]* In two cases, angioedema was promptly relieved by antihistaminic drugs. Dealing with systemic reactions which occurred in nine cases presented no problems and, as reported elsewhere, all the patients had satisfactory clinical relief for an extended period.

There were four instances of "long-lasting" local reactions, two of them in one patient. The most serious was the development of two draining cysts in a child. Cultures of aspirated material were consistently sterile. The lesions healed after repeated aspiration. In another case a cyst developed and drained for several months but finally healed. Material aspirated from the lesion on two occasions revealed no bacterial contamination, no pus, no eosinophils. The fourth long-lasting local reaction occurred in a physician in whom a painful mass developed in the arm some four to eight hours after injection. He rejected our advice to apply conservative treatment and asked a surgeon colleague to incise the mass. Following this procedure he had a non-painful draining local cyst which persisted for months but eventually healed. He reported that the "hay fever" for which he was being treated was quiescent during the period of drainage.

Except for the three who had long lasting local reactions, none of the patients with untoward effects asked to be treated by the older aqueous method rather than with the emulsion. At least six of the patients who did not have either local or systemic reactions felt they had had better clinical results with aqueous therapy, and for them that treatment was resumed.

In April 1963 following the meetings of the American College of Allergy and the Fourth International Seminar on Emulsion Repository Therapy we reduced the volume of the injection from 1.0 to 0.5 milliliter keeping the amount of injected

antigenic material constant. In the period April 1963 to March 1964 we administered 731 injections to 315 patients, some of whom had had reactions to injections as given in the first period. In this period there was only one episode of urticaria (which was transient) and only one local cyst (which was aspirated twice and disappeared completely within two months).

It must be noted that coincident with the reduction of the volume injected several other minor technical changes and refinements were made. We injected the material very slowly for a period of at least 90 seconds, as described by Johnson.⁵ The "L" type of administration as described by Brown was employed instead of the straight in and out injection. No medication was given to any patient before or after injection. The size of the disposable needle was switched to 25-gauge 7/8-inch instead of 5/8-inch.

Discussion

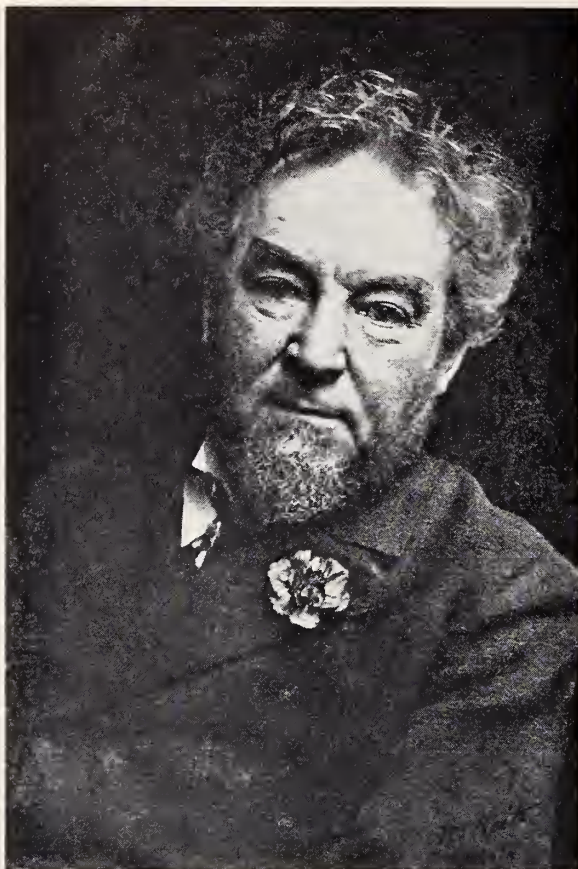
Although the incidence of local and systemic reactions was at no time excessive, the considerable difference as to the incidence and extent of the reactions between the first period of this report and the second, in which the technique was different, appears to be significant. The systemic reactions, which occurred only in the first period, were thought to be due to faulty emulsification although the techniques of preparation and checking were the same in both periods. Every patient who had a systemic reaction had been treated previously with aqueous methods and materials. For the local reactions, most of which appeared within the first 24 hours after injection, there was no simple explanation. The prompt resolution of almost all of these reactions and the sterile nature of the fluid aspirated from those that had to be treated this way, would indicate an irritation or foreign body reaction.⁷ The possibility of local skin hypersensitivity cannot be excluded.

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*Each tablet contains 130 mg theophylline, 24 mg ephedrine hydrochloride, 8 mg phenobarbital.



The William Keith photograph of Dr. Taylor



Dr. Taylor's bookplate

ALTHOUGH Dr. Edward Robeson Taylor was small in stature he was a giant in accomplishment. He was a man to remember, a man of endless capacity, a renaissance man—a successful printer, poet, physician, lawyer, mayor of San Francisco and educator. He was a credit to California and the entire medical profession.

He was born in Springfield, Illinois on September

Submitted January 30, 1964.

EDWARD ROBESON TAYLOR, M.D.

ROY J. POPKIN, M.D., *Los Angeles*

24, 1838, and he died in San Francisco on July 5, 1923. His father was a moderately well off merchant and farmer. When Edward was six, the family moved to Booneville, Missouri, where he attended the Kemper School. This institution is still in existence today as the Kemper Military Academy. After graduation he went to work for a weekly newspaper, the Booneville *Observer*. He learned to set type, did reporting and within a year or two became editor, printer and part owner.

In 1861, Missouri, being a border state, was in turmoil. The violent feelings between the Unionists and the Southern sympathizers were too much for him and he left for California. He arrived in San Francisco in 1862 and after a few weeks left for Sacramento where he worked as a typesetter. He then obtained a job as purser on one of the steamers plying between San Francisco and Sacramento. In this capacity he met many of the most prominent men in the state, many of whom were to materially affect his future. Among them were U.S. Senator James A. McDougale, the Stanford brothers, Josiah and Leland, Henry H. Haight, later Governor of California, and Dr. Hugh H. Toland.

Taylor became interested in medicine, enrolled in the then newly established Toland Medical College in San Francisco and obtained his M.D. degree with the first class in 1865. After practicing for about two years he went to Sacramento to become private secretary to his friend, newly elected Governor Henry H. Haight. He occupied this position from

1867 to 1871, although remaining active in medical affairs.

At the American Medical Association's twenty-second annual meeting held in May 1871 in San Francisco, Taylor, now affiliated with the Sacramento Society for Medical Improvement, was awarded first prize for his essay on the "Chemical Constitution of the Bile." In 1872, inspired by the election of Dr. Thomas M. Logan of Sacramento as President of the American Medical Association, he wrote a series of verses about the Sacramento Society and his confreres. These verses have given us the most interesting information regarding the Society and its members.

Medical education was undergoing a change in the United States at that time. In 1871 Harvard University lengthened its medical course to three years, provoking a storm of controversy. Dr. D. W. Yandell, president of the American Medical Association in 1872, who was against this change, declared that the movement was undesirable and imitative of German methods. Dr. Taylor was the outspoken leader in California medical circles against Dr. Yandell. In the state society's 1872 session, he stressed the advantages of trained thinkers and research workers as contrasted with mechanicians and routinists. He emphasized that the thoroughness of the Germans was not to be discounted, and that there was much to be gained from their educational methods.

During his period as secretary to Governor Haight, Dr. Taylor studied law and in 1872 was admitted to the Bar. He then joined Haight, who had returned to his law practice, as his partner under the firm name of Haight and Taylor. Medical affairs remained his chief interest. The firm represented the San Francisco Medical Society and the California State Medical Society. Taylor supervised the legal technicalities by which the Toland Medical School was donated to the University of California in 1873.

Governor Haight died in 1878 and his uncle joined Dr. Taylor in the law firm which became Taylor and Haight. In 1876 the State Legislature enacted the Medical Practice Act providing for the medical examination and licensing of physicians. Enforcement was to be in the hands of the State Medical Society which called upon Taylor and Haight for services in this regard and in which they were successful. Dr. Taylor's first great case was one against a Dr. Frazer, who defied the new law on the grounds that it was unconstitutional. The case was fought to the State Supreme Court and Dr. Taylor won. The law was declared constitutional and the legal basis for the state control of business and professions was established. Another successful medical case was his reversal in 1885 of a judgment against George W. Graves, M.D., of

Petaluma for malpractice. There were other great legal victories.

His most famous case, and one which brought him to the general attention of the public, involved the Stratton Survey. This case was of extreme importance to the people of San Francisco. Many of the land grants in San Francisco had remained under the Spanish Colonial Laws. Immediately after the American occupation, many property and boundary questions arose. This was further complicated by the fact that the city of San Francisco had filled in large areas originally covered by water. The Federal Government held domain over San Francisco Bay and these filled-in areas, further complicating ownership. In 1867-1868 James T. Stratton on behalf of the United States made a new survey, which if adopted would materially change earlier surveys and upset many titles. Activity in this matter remained dormant for about a decade. In 1878 there was a movement to ask Congress to make the Stratton Survey official. As boundaries and titles that had been settled for many years would be changed, public reaction was great. A committee was appointed to oppose the change, and Dr. Taylor was chosen its legal counsel. In 1880 he went to Washington, D.C., and successfully fought the case. The Stratton Survey became a dead issue, much to the relief of San Francisco. While in Washington Dr. Taylor was admitted to practice before the United States Supreme Court.

Other famous cases included the defense of Adolph Spreckels of sugar fame who shot and wounded M. H. deYoung, publisher of the San Francisco *Chronicle*. Dr. Taylor was one of the first to use what is known as "demonstrative evidence" in court. He created a sensation by bringing in a human skeleton into the courtroom, and by pointing out exactly where the bullet had entered, he demonstrated that Spreckels did not intend to shoot to kill. His skillful defense won the case.

He was not always the fighting attorney. Often he helped others in an advisory capacity. The city attorney of San Francisco utilized his services in a medical capacity in the sensational murder trial of Dr. J. Milton Bowers, who was charged with murdering his bride with phosphorus.

Dr. Taylor entered city politics in 1886 when he was elected to the Board of Freeholders to frame a new reform charter. However, this new charter was not accepted in a special election. The following year he was once more elected to a Board of Freeholders to draft another reform charter. This charter was adopted by the people of San Francisco.

In 1899, Dr. Taylor gave up the practice of law to become dean and professor of law at Hastings College of the Law. He occupied this position until 1919 when he retired due to illness and advanced

age. As an educator at Hastings, his greatest achievement was the successful development of the so-called "case system" of teaching law. Each case was reviewed in its economic and political setting. Dr. Taylor loved to interweave his remarks with literary references. His students came to know every legal problem in the works of Shakespeare and other great writers.

The charter which Dr. Taylor helped frame did not materially affect the quality of San Francisco's elected officials. Graft and corruption continued in varying degrees. Just before the 1906 earthquake disaster, a committee was formed to put an end to these practices.

The mayor was convicted of accepting bribes and of extortion, and under the existing laws was automatically out of office. Political pandemonium followed. Furthermore the almost chaotic conditions which followed the earthquake required a man of great abilities. Dr. Taylor was available. In spite of personal obligations and his duties at Hastings, he accepted the draft and was appointed Mayor in July 1907. He did an excellent job of reform and restoration of the city in this time of misfortune and was elected mayor for a regular two-year term. He declined to run for another term.

During his administration the original planning of the Civic Center and preliminary work on the San Francisco Hetch-Hetchy water project were initiated. Subsequent mayors of the city often acknowledged the firm foundations he had laid for the future administrations.

Dr. Taylor's interest in medicine was always lively. In 1882 Dr. Levi Cooper Lane organized the Cooper Medical College, and Dr. Taylor was its vice president and president until the school was transferred to Stanford University in 1908. The 1906 earthquake and fire destroyed the building used by Hastings College. Dr. Taylor arranged for use of the lecture rooms in Cooper Medical College, and Hastings College of Law opened there in August 1906. Although medical school surroundings, especially the clinical demonstrations upon cadavers, may have been disconcerting to the law students, the over-all influence may have been beneficial.

Dr. Taylor was at all times civic minded and gave of himself freely. Besides his medical affiliations he was a trustee of the Public Library of San Francisco and of the San Francisco Law Library, president of the San Francisco Bar Association for several years and a member of the Board of Trustees of Stanford University from 1891-1899 when he resigned to become dean of Hastings College of the Law. The San Francisco Public Library adopted his own personal motto, *Vita sine Literis Mors est*.

In 1870 he married Agnes Stanford, the daughter of Josiah Stanford and the niece of Leland Stanford.

There were five children, three of whom died at early ages. The two remaining children, sons, lived to advanced ages. The sons formed the printing firm later known as Taylor and Taylor in San Francisco and the firm achieved great prominence for outstanding examples of printing and craftsmanship. The first Mrs. Taylor died in 1906 and Dr. Taylor married Eunice Jeffries in 1908.

Dr. Taylor was an accomplished poet. Many of his poems were published in newspapers and magazines and the Taylor firm printed many of his collected volumes in limited editions. His poems were on many subjects dating from his early years in California. One of his earliest poems, published in 1872, was "Farewell to the Springs," referring to the Alameda Warm Springs. He wrote sonnets on the death of his children and of his first wife. His most lasting literary work was his translation of the sonnets of Jose Maria de Heredia, a French poet (1824-1905). The first edition was in 1897. There were four editions, each slightly different from the previous as the translator tried for improvement. On the basis of these translations he was elected to the French Academy; and the translations and his own later war poems won for him France's Cross of the Legion of Honor, which he received in 1920. Titles of his single poems and collected editions were "Poems," "The Spirit's Realm," "Moods and Other Verses," "Memories," "Selected Poems," "Sonnets on Some Pictures Painted by William Keith," "Into the Light," "Visions and Other Verse" and "Lavender and Other Verse." His "In the Court of Ages" was a collection of poems commemorating the Panama-Pacific International Exposition in San Francisco in 1915. He wrote several poems concerning World War I, published in 1917 in a collection "To Arms." In 1920 he published "Chants With the Soul." The following (from "The Surgeon") is an example of his style.

"In anesthesia's arms the patient lies
Unmindful of the cruel, kindly knife
While helpers stand anear with interest rife,
And expectation dancing in their eyes.
The Surgeon then, cool, confident, and wise,
Cuts resolutely deep where weakening life
Has waged with its dread foe unequal strife,
And ends forever pains tormenting cries.
A conqueror he, with monsters in his train
To their most hidden coverts tracked and slain,
Their victim's lips aflame with songs of praise.
His conquests bear no weight of orphans' tears,
But sweet Beneficence upon them lays
His gentle hand through all his laurelled years."

The opening stanza of "Into the Light" is slightly different in style.

"The sovran Sun afar his glory flings,
And Morn exultant preens her dewy wings,
While every air with fragrancy imbued,
Awake to jaysome life all living things."

Taylor had a knack for making friends. The Stanford brothers, Senator James A. McDougale, Governor Haight, Drs. Toland and Levi Cooper Lane have already been mentioned. He was a close friend of Henry George, the author of "Progress and Poverty," and he not only read the entire manuscript of that book but corrected the proofs and set most of the type for its first printing in California. William Keith, the Western artist, was also closely associated with him. Although Keith was noted principally as a painter, he was an excellent photographer. His photograph, reproduced on this page, is acknowledged as one of the best portraits of Dr. Taylor.

A bronze bust of Dr. Taylor is in the San Francisco Public Library.

His personal bookplate with the mottoes "Vita sine Literis Mors est" and "Labora et Servi" typify his outlook on life.

The esteem by which Dr. Taylor is held in San Francisco is expressed in the following quotation from *History of the San Francisco Medical Society 1850-1900*:

"The story of the San Francisco Medical Society would not be complete without a sketch of Edward

Robeson Taylor, an honorary member of the Society as a physician and long its legal advisor as a member of the bar. Doctor Taylor was an integral part of San Francisco for many years; he was doctor, lawyer, educator and poet. . . ."

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ACKNOWLEDGMENTS: I am indebted to Mr. Kenneth M. Johnson, San Francisco, for the generous use of his unpublished manuscript on the life of Dr. Taylor and to The Huntington Library, San Marino, California for the study of newspaper clippings and collections of Dr. Taylor's poems.

Information was obtained from the following additional publications:

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History of the San Francisco Medical Society (Vol. 1—1850-1900), by J. Marion Reed, M.D., published by the San Francisco Medical Society, 1958.

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POINT BUNNELL

An error in my article concerning the naming of Yosemite Valley was pointed out to me December 21, 1964 by Clayton D. Mote, M.D., of San Francisco, one of my teachers in medical school. Dr. Mote graciously wrote me that the last sentence of my paper is incorrect. Dr. Bunnell's name is commemorated in Yosemite National Park at Point Bunnell.

One never outgrows his need for teachers.

EDWARD SHAPIRO, M.D.

A New Physical Sign for the Detection of Small Pleural Effusions

EUGENE EISENBERG, M.D.
San Francisco

A PHYSICAL SIGN of small pleural effusions that has not been described previously was discovered in five patients attending a clinic for the treatment of advanced cancer of the breast. The sign consists of a sudden change in breath sounds at mid-inspiration. In each instance attention was first attracted by finding the level of diaphragmatic dullness at a higher level than had been noted previously. The level of dullness still moved down one or two interspaces between full expiration and inspiration. No other signs of pleural fluid or atelectasis were detectable. When the diaphragm of the stethoscope was placed at the level of diaphragmatic dullness at the end of expiration and the patient breathed in deeply, breath sounds were heard only faintly or not at all during the first half of inspiration. At mid-inspiration clear breath sounds suddenly became audible and were heard for the duration of the inspiratory movement. When the patient leaned forward, normal breath sounds could be heard throughout the inspiratory phase of respiration.

This sign was detected in five patients during a nine-month period when the author was personally

caring for 88 patients with advanced cancer of the breast. In each instance no other physical signs of fluid could be elicited. In routine x-ray examinations, the fluid assumed the shape of the diaphragm in three of the five patients. In the other two, the presence of fluid was obvious in roentgenograms. Confirmation was obtained in all five patients by lateral decubitus roentgenograms and removal of 100 to 250 ml of fluid by thoracentesis.

Roentgenograms of the chest of one of the five patients taken two weeks after the sign was first detected are shown in Figures 1 and 2. In the two-week interval, additional fluid had accumulated, but the "break-through" breath sound was still present. The degree of movement of the fluid level between full inspiration and expiration can be seen in the posterior-anterior projection (Figure 1). In full inspiration, the position used for routine roentgenograms, the fluid level on the right assumed the shape of the diaphragm. This evidently occurs when the base of the lung retains its concave shape and overrides the fluid.

When a small amount of free fluid lies between the lung and the diaphragm without producing atelectasis, descent of the diaphragm causes the fluid level to move downward. As the fluid descends, it

From the Department of Medicine, University of California School of Medicine.

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Figure 1.—Roentgenograms showing posterior-anterior view in full expiration (left) and full inspiration (right). The positioning of the chest piece of the stethoscope to elicit the “break-through” breath sound is shown by the dotted circle. Note that the fluid level assumes the shape of the diaphragm during inspiration.

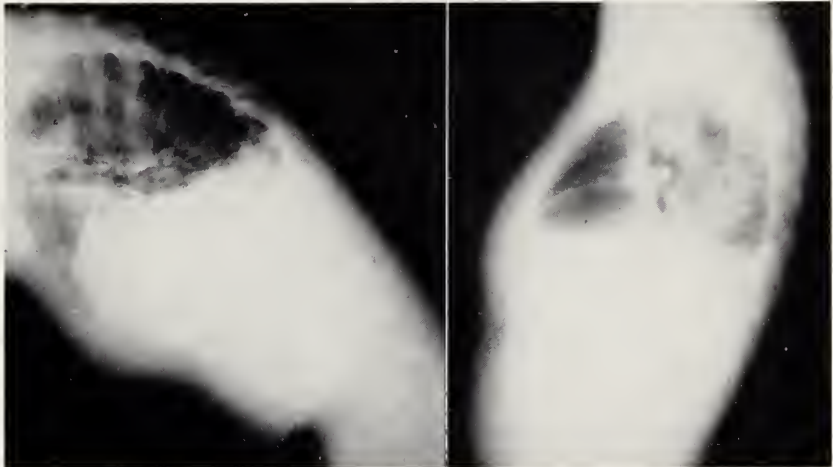


Figure 2. — Lateral projection showing that when the patient bends forward the fluid gravitates forward, uncovering the posterior lung and eliminating the “break-through” breath sound.

is followed by aerated lung. If the physician places the chest piece of the stethoscope just below the “high-water level,” he will hear no breath sounds, or only faint ones, after which normal breath sounds will become audible. Such a relationship between the fluid level, position of the chest piece and change in breath sounds was confirmed by combined auscultation and fluoroscopic examination in two patients. The change in the posterior fluid level when the patient bends forward is shown in the lateral projection (Figure 2).

This sign probably will not be encountered frequently. Its occurrence obviously depends on the presence of a certain amount of free fluid in association with only slight pleural inflammation and no atelectasis. When it is encountered, the sudden change in breath sounds during inspiration is quite striking. The clinician who is aware of the significance of the “break-through” breath sound should find it useful in the detection of small pleural effusions when the usual signs cannot be elicited.

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Management of Atopic Dermatitis

JUD R. SCHOLTZ, M.D., *Pasadena*

■ *Fourteen patients with severe atopic dermatitis of long duration, requiring long term systemic corticosteroid therapy were managed with a treatment program designed to preserve the natural lipid surface film, avoid controllable stimuli to sweating, control skin infection, modify existing keratoderma and utilize active topical corticosteroid therapy in non-lipid vehicles. Substantial healing of the skin occurred in all cases even with discontinuance of systemic administration of steroids.*

COMPLETELY SUCCESSFUL treatment of severe atopic dermatitis is yet to be achieved, and management of the patient with a skin disease of this order is a major challenge to the therapist. Long-term systemic steroid therapy brings about good control for many patients, but has serious, undesirable metabolic complications. Topical corticosteroid therapy by surface depot (occlusive) therapy,^{2,3,6} effective in many kinds of inflammatory dermatosis, cannot be used in most atopic patients because of the sweat retention factor. A treatment regimen which could control the skin lesion without using systemic corticosteroids, and obtain optimal effects from the highly active topical corticosteroids now available, is desirable.

Beginning in December, 1962, I began using a treatment regimen⁴ which has proved superior to any in my previous experience. The program is designed to cope with the skin lesion itself, and does not alter the many constitutional, humoral,

physiologic and psychologic factors known to be present and operative in the constellation of atopic clinical manifestations. It appears to be a more satisfactory means of managing the atopic skin, achieving patient comfort and bringing about a considerable degree of healing of the dermatitis.

Although the treatment regimen is one of which I find no previously published report, it is made up of a combination of measures that have been used by many therapists in the past. The experiences reported here are empirical clinical observations in the form of case reports, and no conclusions are drawn or implied relative to the basic nature and cause of atopic disease.

Objectives of Treatment

That xeroderma, keratoderma and sweat retention are commonly present in the atopic skin is widely recognized in the literature.^{1,2,6}

The treatment regimen here presented has the following objectives:

1. Preservation of whatever natural lipid surface film is present in the patient. In this respect the management is analogous to that of any patient

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Submitted May 2, 1964.

with "dry skin eczema," asteatotic skin or xeroderma.

2. Avoidance of all controllable factors which induce exacerbation such as (a) stimulus to sweating by the conventional hot bath, medicated or otherwise; (b) all greases, ointments and lipid emulsions; (c) any topical medication which may possibly produce irritation of any kind.

3. Healing of the active dermatitis with topical corticosteroids.

4. Control of bacterial infection in the skin when present.

5. Correction of keratoderma if possible.

Clinical Material

Since December 1962, 30 consecutive patients with atopic dermatitis seen in private practice have been managed by this program. The results have been most encouraging in all patients, and no patient has been lost from observation. The patients of most significance and the subject of this report were 14 adults with severe intractable dermatitis of many years' duration, with only minor remissions that usually were induced by systemic corticosteroid therapy. Eleven patients had received corticosteroid therapy for long terms either continuously or intermittently, and attempts to withdraw systemic corticosteroids had resulted in prompt exacerbation. All had been under competent dermatologic management, some of them at major medical institutions. Six patients were referred by other dermatologists for inclusion in this study. Five patients had been under my care on systemic corticosteroid therapy for four years or more before the present treatment was begun. Of the 14 patients, 13 have asthma, and five have cataracts. The essential data on these patients is summarized in Table 1. There was only one case in which the disease began in adult life and the diagnosis might be questionable (Case 1). In the others, the disease had commenced in early childhood or infancy and continued throughout life, with brief periods of relative freedom during the period age four to ten years.

This group of patients therefore might be considered to be a stern trial for any treatment. Sulzberger⁵ said: "Cases persisting or beginning after the middle twenties are the most difficult to manage, usually have little tendency to spontaneous cure, and fortunately are relatively rare . . ." Obermayer¹ agreed that in patients whose disease has persisted into the third decade of life, spontaneous remission is unusual and the disease is chronic and recalcitrant and the prognosis poor.

For comparison of evidence as to the efficacy of a method of treatment, it is sometimes important to know what therapeutic measures were *not* em-

TABLE 1.—Clinical Data on 14 Patients with Atopic Dermatitis Treated by Method Described.

Patient	Age and Sex	Duration of Atopic Dermatitis	Associated Atopic Disease	Cataracts Present	Last Previous Major Remission	Previous Systemic Steroid Therapy		Severity at Start of Present Treatment	Present Treatment Initiated	Duration of Control Without Relapse (Months)
						Maintenance Dose	Duration			
1.	54F	11 years	asthma	posterior subcapsular	1954	8 mg Medrol [®] †	6 years continuous	moderate*	12/28/62	14
2.	33F	continuous since infancy 29 years	asthma, hay fever	.....	none in past 19 years	unknown	10 years intermittent	very severe	1/22/63	13
3.	27F	26 years recurrent	asthma	.....	1960	unknown	2 years intermittent	moderate	2/28/63	12
4.	25F	25 years	hay fever	.....	1958	15 mg prednisone	2 years intermittent	moderate*†	4/ 3/63	11
5.	18F	15 years	hay fever	.....	1957	10 to 15 mg prednisone	5 years continuous	moderate*†	4/ 9/63	11
6.	27M	age 1-3, 14-26	hay fever	.....	1956	2 to 4 mg Medrol [®] †	4 years continuous	controlled*†	6/18/63	8
7.	28M	28 years continuous	asthma, hay fever	.....	1951	4 to 6 mg Medrol [®] †	8 years intermittent	moderate*	7/ 2/63	7
8.	26F	24 years continuous	asthma	.....	none since onset	.....	none in past 4 years	moderate	7/12/63	7
9.	60F	59 years	asthma, hay fever	.....	1952	4 to 8 mg triamcinolone	4 years intermittent	moderate	9/ 6/63	5
10.	37M	33 years	asthma, hay fever	posterior subcapsular	1955	4 to 6 mg Medrol [®] †	8 years continuous	severe*†	9/20/63	4
11.	27F	26 years	asthma, hay fever	posterior subcapsular	1960	8 to 12 mg triamcinolone	3 years continuous	severe*†	10/26/63	4
12.	32M	32 years continuous	asthma, hay fever	.....	none since onset	10 mg prednisone	8 years continuous	very severe*†	10/29/63	4
13.	43M	42 years	asthma	posterior subcapsular	1938	8 mg Medrol [®] †	7 years intermittent	moderate*	11/ 1/63	4
14.	48M	since infancy, severe since age 22	asthma	bizarre cataract —atopic type	1951	5 to 10 mg prednisone	10 years continuous	moderate*†	11/15/63	3

*on systemic steroids. †Methylprednisolone.

‡—Cushingoid.

ployed and what possibly influential factors were *not* present. A pertinent list for the present series follows:

- Patients were not put in hospitals.
- Diet was not controlled in any way.
- Daily routine activities were not changed. Working and professional people remained on their jobs, college students continued in school, housewives continued all routine activities.
- Psychological factors were not discussed. One patient (Case 4) had been under psychiatric treatment for one year without benefit on the skin, and this treatment was not interrupted.
- Sedatives and tranquilizers were not routinely used.
- There was no change of marital status in any patient.
- There was no recent change in environment. All had lived in California for at least three years.
- The patients were not told not to scratch.

Treatment Regimen

The regimen of treatment in this series entailed the following items:

- Systemic use of corticosteroids was discontinued.
- Bathing or washing, medicated or otherwise, was prohibited (except as indicated below), since this might remove what natural lipid surface film was present. In addition, hot baths were forbidden, since they are a stimulus to sweating. (Ocean swimming, however, usually is well tolerated.)
- The skin was "cleansed" daily with a lipid-free lotion (Cetaphil®, Texas Pharmacal). This was applied once or more daily and was gently wiped off or left to dry. Soap and water cleansing of the fingers and toes, axillary, inguinal-crural and perianal areas, is permitted if not involved with dermatitis. This program was esthetically acceptable to all patients.
- Greasy and lipid lubricants were not permitted. (Although lubrication might be desirable, I have not found a "lubricant" which does not cause heating and itching of the atopic skin.)
- Acutely inflamed areas were assumed to be infected with bacteria, and in such cases systemic antibiotics were used for 10 to 12 days when indicated. Triacetyloleandomycin was used for this purpose except when other drugs were indicated by culture and sensitivity studies.
- Corticosteroid topical therapy. The measures noted above are essential if maximum benefit is to be derived from active topical medication such as corticosteroids. Conversely, it can be said that much

of the benefit from topical corticosteroids can be lost if concomitant local measures have adversary effect. In this series fluocinolone acetonide 0.01 per cent in propylene glycol was used as the major steroid. However, triamcinolone acetonide and flurandrenolone acetonide should be effective provided they are applied in lipid-free vehicles.

- Vitamin A, 50,000 units daily in adults, was given for at least six months.
- Thyroid extract USP, 30 to 60 mg, was administered daily unless contraindicated. Protein-bound iodine (PBI) and other thyroid function tests were not routinely done in this group of patients. However, my experience has been that there is no consistent laboratory evidence of significant hypothyroidism in patients with atopic dermatitis, the PBI being in the range of 4 to 5 micrograms per 100 ml. Hence giving thyroid extract routinely is open to criticism in these circumstances. I have given it, as I do routinely with patients with keratoderma, with the idea that it may potentiate the effect of the vitamin A.

- Phenobarbital, antihistaminics and ataractics were given in the early phases when pruritus was still present. None of the 14 patients in the present series required such medication for more than a few days at the beginning of treatment.

- Exercise and exposure to the sun were permitted only after decided improvement had occurred and the patient noted sweat on the surface of the skin.

Each patient was given copies of written instructions, reassurances and explanations of the reasons for various aspects of the regimen, as follows:

1. Until your skin has become more "normal," the treatment will be more effective if the skin is not washed. *Therefore soap and water baths and showers are to be discontinued until further notice.* Washing under the arms, in the groin, the genitals and around the anal area, and the hands and feet is permitted provided these areas are not involved with the dermatitis.

Regardless of what you may put into the water, *the hot bath or shower which you use to try to get relief from itching is especially bad for your skin. Use the Cetaphil lotion instead—as often as you feel the need. Rub in gently and wipe off the excess. This is the substitute for the bath or shower both for cleansing and for relief of symptoms.*

2. Even though your skin is dry, there is reason to believe that *greases and oils aggravate your skin problem.* So, until further notice, *do not apply any lubricant or skin softener.* In the early period of your treatment, the skin will be scaly and will look rough—but resist the temptation to wash it off or to grease it.

3. In applying your steroid medication, be certain that it is rubbed in completely so that none remains on the surface.

4. As the skin begins to improve, those areas that have been thickened and leathery may show many *small* hard "lumps." These are *not a complication*, but probably have been present for a long time. They become visible as the skin around them begins to be less swollen. *They will gradually and completely disappear as the treatment continues.*

5. It is not expected that you can refrain from scratching when the itching is severe.

6. *Do not apply anything to your skin except what has been specifically prescribed.*

Results of Treatment

The results of treatment were as follows:

- Patient comfort, usually some degree of subjective improvement, was obtained in less than two weeks.
- All patients remained controlled without return to systemic steroids.
- Major but not complete healing of the skin in from two to six months, including disappearance of areas of heavy lichenification in some areas, return of the skin toward normality, decrease of keratoderma and apparent return of "more normal" lipid surface film.
- Return of more normal sweating in three patients.
- Disappearance of white dermographism. (Three patients volunteered this observation.)

The short-term results of treatment have been good, but the ultimate evaluation must await long term observation and treatment of many more patients. In this group the longest period of control was 14 months in two patients, and the shortest was three months in one patient.

Discussion

The treatment program here described, which effectively controlled the dermatitis in the 14 patients in the present series, has been used in 16 other cases of less severe disease with equally good results.

The observations are purely empirical. The results have not been subjected to statistical analysis, and it is possible they are a coincidence. It should be noted that this study involves no comparisons with other forms of treatment except my own past experience and the previous experience of the patients included in the study. It is possible that there are other forms of treatment which are superior, but which have not come to my attention. The

program is presented as what thus far has been a highly successful management of the skin in patients with atopic dermatitis. It is not put forward as a "cure."

Evaluation of Measures Used

Under the conditions of this study, there is no basis for accurately evaluating the relative importance of the several therapeutic measures used, and it may be that some of them, for example the administration of vitamin A and thyroid extract, are unnecessary and contribute nothing important to the results. However, it is clear to me that at least five measures are essential to success, namely, (1) abstention from washing the skin; (2) avoidance of greases and oils; (3) control of bacterial infection in the skin; (4) use of active topical corticosteroid in vehicles free of, or low in, lipids; (5) avoidance of all other topical agents which have any potential for irritation.

Certain limited evaluations have been done as follows: Patients who use the corticosteroid solution but who do not comply with the no-bathing, no-greasing restrictions, do not get good results, and continue to have exacerbations. On the other hand, patients who do comply with the no-bathing, no-greasing restrictions, but use a propylene glycol vehicle alone in limited areas, obtain little or no healing of the skin even though the areas may be reasonably comfortable.

In one patient, the entire program was carried out except that the only local application to the right arm was a lubricating oil which she had used and preferred for several years. In four weeks all other areas were decidedly improved and comfortable, whereas the right arm still showed a highly active, lichenified, erythematous dermatitis and was very pruritic.

Topical Corticosteroid Therapy

No attempt was made to evaluate the relative activity of various topical corticosteroids, and no implications are intended. Good results could be expected with other active corticosteroids such as triamcinolone acetonide and flurandrenolone, but these were not available to me in propylene glycol.

Fluocinolone acetonide in propylene glycol was the major steroid preparation used in this group of patients and it was well tolerated by all of them. All patients preferred the propylene glycol vehicle to any cream vehicle insofar as comfort after application was concerned. From the standpoint of therapeutic effectiveness, excellent results were obtained in limited test areas with fluocinolone acetonide cream and triamcinolone acetonide cream.

Resolution and healing of areas of dermatitis can be hastened by the use of higher concentration of

TABLE 2.—Amounts of Topically Applied Corticosteroid

Patient	Per Cent Body Surface Area Involved (Approximate)	Average Daily Dose (in mg) Fluocinolone Acetonide	
		First 60 Days	First 180 Days
1.	50	0.57	0.34
2.	95	1.75	1.80
3.	15	0.27	0.13
4.	20	0.50	0.30
5.	30	0.55	0.64
6.	80	0.90	0.43
7.	30	0.25	0.15
8.	20	not accurately recorded	
9.	35	0.62	0.56 (150 days)
10.	90	not accurately recorded	
11.	95	0.82	0.52 (120 days)
12.	98	not accurately recorded (3 mg +)	
13.	95	1.30	0.75 (120 days)
14.	20	0.39	0.19 (90 days)

topical corticosteroids, and this was demonstrated in limited areas treated with triamcinolone acetate cream 0.5 per cent, and fluocinolone acetate cream and solution 0.2 per cent. However, since application of these high concentrations to large areas of skin raises the question of systemic absorption, and since the objective of this treatment is to get results without appreciable systemic corticosteroid effect, the major part of the treatment was carried through with the 0.01 per cent solution. This entire question needs further elucidation.

The average daily amount of fluocinolone acetate solution (0.01 per cent) at the initiation of treatment was 15 ml (equivalent of 1.5 mg of the active drug) usually applied in two to three applications, with less being used as the involved area decreased. The solution is dropped onto the skin surface with a dropper and spread with the fingers—one drop covering about 25 square centimeters if the skin surface is reasonably intact. The solution should be rubbed gently until it seems to be rubbed in. An uncomfortable sticky sensation results if excess material remains on the skin surface. When applied to denuded and fissured areas, a burning and stinging sensation occurs which is rarely severe enough to interfere with treatment.

In this group of patients the amount of topical steroid used was far below the amount of systemic steroid required to produce equivalent results in the skin (Table 2). Three patients were studied for pituitary adrenal function after they had been on the program a minimum of four months, and off systemic steroids for this period. There was no evidence of impaired pituitary adrenal function as measured by response to metyrapone in two patients and to intravenous ACTH and metyrapone in one.*

*The details of these studies will be published in a separate report.

(Unfortunately these tests were not done immediately after withdrawal of systemic corticosteroid therapy. If impaired function had been found after the present topical therapy, it would have been impossible to determine whether the impairment was due to the present therapy or was a consequence of the long-term systemic steroid therapy plus the extensive topical steroid therapy previously administered.)

Seven of the patients had signs of hypercorticism (Cushingoid) at the time systemic steroid therapy was withdrawn. In all seven these signs disappeared completely on the present program.

In one instance (Case 5) systemic steroid therapy had been abruptly withdrawn one week before the patient was referred to me for inclusion in this study. She was having exacerbation of the dermal disease and was Cushingoid. Improvement began in less than two weeks of the present program, and since improvement continued it was not necessary to reinstitute systemic steroids at any time. In other patients systemic steroids had been continued up to the start of this present treatment and were withdrawn gradually over a period of two to four weeks. In no instance was it necessary to reinstitute systemic corticosteroid therapy for control of the dermatitis.

Dosage of Topical Steroid

To a degree, the maximum daily dosage was arbitrarily limited since the patients were asked to try to limit the amount to 15 or 20 ml of solution daily. However, one patient (Case 12, Table 2) who had severe universal dermatitis with heavy lichenification of large areas, used considerably more. In the average patient with involvement of scalp, face and neck, cubital and popliteal areas, 15 ml will provide adequate application twice daily. As improvement occurs, the amount needed decreases, as noted in the averages for the six-month treatment period (Table 2).

Role of the Vehicle

Avoidance of greases and oils requires that any active medication be applied in a suitable vehicle free of, or very low in, lipid content. Propylene glycol, a higher alcohol, is non-toxic, non-irritating, non-sensitizing and especially well tolerated by atopic patients (and in other sweat retention syndromes). It is strongly hygroscopic, and this may possibly explain its usefulness in atopic patients if imbibition of sweat pores is a factor in sweat retention (Sulzberger⁵). Propylene glycol is also demulcent and tends to form a protective coating on abraded surfaces. It is a vehicle of wide applicability with few disadvantages and is especially useful in intertriginous areas and in the scalp and

external ear. I have used it for more than ten years in several thousand patients, as a vehicle for a variety of agents, and have never observed a reaction to the vehicle if properly used.

Time Factors

Symptomatic improvement occurred within two weeks in all patients, but significant healing of the skin lesions took longer, depending upon the severity of the lesions at the beginning of treatment. Areas of decidedly thickened, lichenified, leathery skin required four to six months, and in some areas complete return to normal was not achieved with fluocinolone acetonide 0.01 per cent solution. In these limited resistant areas, treatment with 0.5 per cent triamcinolone acetonide cream and 0.25 per cent fluocinolone acetonide cream were used with success. Large areas of moderate severity did clear with the 0.01 per cent solution, usually in periods of one to four months.

Sweat Function

Of particular interest was that three patients (Cases 2, 4 and 5) with lifetime disease, after pronounced improvement in the dermatitis, volunteered the observation that they were conscious of sweating for the first time in many years. Previously when under conditions of high environmental temperature and humidity, they felt uncomfortable, the skin feeling "sticky" but not moist, and they were not conscious of sweating in the usual sense.

Role of the Patient

Since this treatment is carried out entirely by the patient, conscientious cooperation and attention to detail is crucial to any success which might be achieved. However, patients who have suffered the misery of this disease for many years are strongly motivated to cooperate and carry through any program which offers help. I have stressed to them that even though some relief of symptoms can be obtained in a few weeks, real progress can only come with many months of application of the program. Since virtually all patients with chronic, severe atopic dermatitis are addicted to long hot baths or showers, and also to generous and frequent use of greases and oils, careful explanation by the physician at the beginning of treatment is necessary to wean them from these practices. They must be warned that at times the skin may be dry and peeling, and that they must resist the temptation to soak the scales off in a hot tub or to apply oils and greases.

Reactions and Complications

The treatment regimen herein described has been remarkably free of significant reactions and complications. The question of greatest importance is

the possibility of systemic corticosteroid effect through percutaneous absorption. However, as indicated in Table 2, the amounts applied to the skin daily have been below that which could produce systemic effect even if the absorption approached 100 per cent of the applied dose.

In one female patient, folliculitis of the face occurred after nine months of this program. It was assumed that this was the result of "no-washing" and was in the nature of acneform or rosacea-like folliculitis. This is supported by the facts that cultures revealed no pathogenic organisms, there was no response to antibiotics systemically and locally, and there appeared to be response in several weeks to washing once daily with Lowila® cake* and water. After three weeks of washing, the patient noted that the skin had become uncomfortably dry and itching, and preferred to return to the Cetaphil cleansing. The folliculitis did not recur.

If this patient is excluded, there was no suggestion that the regimen—specifically the topical steroid—promoted infection or reduced resistance to infection of any kind. Furunculosis did not occur.

In two patients under conditions of extremely high humidity and heat, "heat rash" occurred. However, this would not be unexpected in atopic patients and should not be considered a complication of treatment. As a matter of fact, treatment was continued and appeared to have a beneficial effect, the eruptions clearing in less than one week.

Probably the most important complication was the exacerbation of asthma in three patients in this group. In two, this did not occur until they had been on the program for many months and the skin lesions had become completely clear or nearly so. The third patient (Case 14) had been receiving systemic steroids continuously for 12 years and when systemic administration was discontinued gradually over a period of four weeks, severe asthma developed for the first time since treatment by that means had been begun. This occurred about a week after the last oral dose of prednisone. At the time of the attack of asthma, the skin had become about 90 per cent clear and the lesions flared only slightly with the return of asthma. The patient was referred to an allergist who was of the opinion that resumption of systemic steroids was necessary, at least temporarily, for the control of the asthma. In the other two patients, the asthma was controlled with inhalation therapy and an occasional single oral dose (4 mg) of triamcinolone. Over a period of one month the asthma gradually subsided and both patients thereafter remained free of it.

Ten other patients who had had asthma in the

*Lauryl sulfoacetate in a corn dextrin base.

past, had no major exacerbation during the present period of observation.

The impression is strong that the patient with atopic dermatitis aggravates the condition by the bathing and showering which he does either for the supposed healing effect or for relief of symptoms. Often on his own or encouraged by a physician, he takes long hot baths (medicated or otherwise) and showers, sometimes two or three times daily, and immediately afterward greases or oils the skin. It is apparent that both these measures are directly deleterious, and when they are discontinued there is almost immediate (within a few days) relief from itching and a sudden definite decrease in the inflammation and swelling of the skin. The symptomatic response is apparent in a few days and some objective changes are evident in one to two weeks—long before much actual healing can be obtained with topical steroids. This effect was observed in all the 14 patients in the present series.

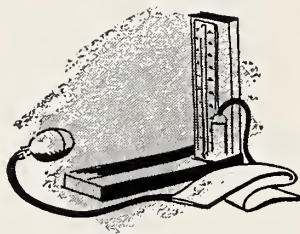
960 East Green, Pasadena, California 91101.

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ADDENDUM: This series now totals 63 patients, ages ranging from 2 to 60 years, and includes 6 additional severe cases, with continuing satisfactory results. An additional 12 months has been added to the period of control without the use of systemic corticosteroids in this group of patients.

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Effective Psychopharmacology

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INTENSIVE CLINICAL USAGE of psychoactive drugs in the past decade has established psychopharmacology as a part of everyday medical practice. We are long past that time when "tranquilizers" were of interest only to psychiatrists; today nearly all physicians must understand the values and limitations of drugs that bring about changes in the psyche and become skilled in their use.¹⁴ One reason is the increasing concern for the many patients who are not officially labeled as psychiatric, yet whose complaints are largely or entirely functional. Psychopharmacology offers new possibilities for the management of persons of this order.

In addition, the community-oriented care of psychiatric patients is gaining strength.² More and more of these people, who were previously sent to remote state hospitals, will be treated entirely by local facilities; and if institutionalized they will soon be returned home on maintenance medication. Psychiatrists alone will not be able to carry this workload of dealing with them. It will be up to physicians generally to offer most of the follow-up care. Kline¹¹ forcefully pointed out that "drug treatment is an absolute and unqualified necessity" in a community mental health program. Besides the effectiveness of the drugs in the treatment of psychotic persons, he stressed further advantages: They are relatively cheap; training in their use is relatively short; treatment continues even though the thera-

pist or the patient miss sessions; a change of therapists is not a serious interference with treatment; limited intelligence or language or cultural differences are not overwhelming impediments; and drugs and psychotherapy may complement each other.

Categories of Drugs

Many systems have been devised for classifying psychoactive agents.⁹ Most of them are overly complicated and may be misleading to the clinician. As a simple and practical guide, the physician need only keep in mind the following three categories: *phenothiazines*, *anti-anxiety drugs*, and *antidepressants*. This scheme provides the first step toward effective psychopharmacology.

The unfortunate term *tranquilizer* should be abandoned altogether. It was first popularly applied to the phenothiazines but has since been used to blanket a variety of drugs of diverse chemical structures and clinical applications. The ensuing confusion has led to such errors as the use of phenothiazines to "tranquilize" patients with neurotic anxiety or depression, often with aggravation of the basic disorder. Furthermore, with some withdrawn and immobilized schizophrenics, drug therapy may lead to increased interest and activity, an outcome hardly to be thought of as "tranquilization."

Phenothiazines

In the phenothiazine group are such effective agents as chlorpromazine (Thorazine®), thioridazine (Mellaril®), perphenazine (Trilafon®), trifluo-

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perazine (Stelazine®), and fluphenazine (Prolixin®). Generally speaking, these agents should be reserved for the treatment of psychosis, particularly schizophrenia.¹² They may also be used in those depressive conditions in which there is an accompanying thought disorder, but only in combination with antidepressants. Occasional use of them in other psychiatric disorders should be left to experts. Properly applied, the phenothiazines have the ability to quell impulsive and bizarre behavior, to dampen over-reactions to internal or external stimuli, and to improve thought disorders. They may be expected to lessen anxiety in the psychotic patient, but they may only increase it in psychoneurotic persons.

Thus it becomes clear that the physician using drugs must have skill in recognizing schizophrenic and depressive illnesses, particularly in their disguised or nascent forms.

Anti-Anxiety Agents

Anti-anxiety agents are popularly represented by such drugs as meprobamate (Miltown®, Equanil®), chlordiazepoxide (Librium®), and diazepam (Valium®). They are commonly prescribed for a variety of anxiety-tension states and are among the most frequently used drugs in medical practice.

Pharmacologically they belong to the sedative-hypnotic family, so they can be habituating. It is preferable not to use them regularly for indefinite periods of time. Rather, they should be employed for periods of stress and crisis; the patient may then be told that the medicine works best if taken only at times of special need.

Although some clinicians disagree, the majority of them feel that these agents offer advantages over the time-honored barbiturates.¹⁶ They seem to afford relief of anxiety and tension within a dosage range which avoids the more troublesome complications and side effects of the conventional sedatives. Chlordiazepoxide and diazepam are particularly recommended, the latter appearing to offer relief for mild or moderate depressive symptoms.

Antidepressants

Antidepressants are of two major groups. Phenelzine (Nardil®), nialamide (Niamid®), and isocarboxazid (Marplan®) have the ability to inhibit the enzyme monoamine oxidase (MAO).⁷ Amitriptyline (Elavil®) and imipramine (Tofranil®) do not inhibit monoamine oxidase; they are generally safer and more effective than the MAO inhibitors.

Tranlycypromine (Parnate®) presents a special case. It is an MAO inhibitor that was widely used because it was more rapid in its action and more effective than the other members of its group. However, the reports of rare hypertensive crises asso-

ciated with death from cerebrovascular accident caused its removal from the market for several months. These cases apparently were associated with the concurrent ingestion of cheese or other substances containing the precursors of pressor amines. Although recently replaced on the market, tranlycypromine can be prescribed only if a number of criteria are met.¹⁵ Its use must now be considered restricted to a small number of special cases.

The early over-enthusiasm for the antidepressants has been modified.³ They are useful agents, but they may not be expected to terminate serious depression in a significant proportion of cases. For this reason, the clinician should be alert to the possibilities of referring non-responsive patients for electroconvulsive therapy (ECT).

Reserpine compounds are practically not used today for psychiatric conditions. They were found to be less effective than the phenothiazines and to produce a high incidence of side effects. Physicians prescribing them as antihypertensive agents should bear in mind that they can induce depression.

Drug Combinations

Therapy with a single, properly chosen agent that relieves all the patient's symptoms is the ideal. Not only does this lessen the problem of managing side effects that often occur, it permits the physician to know at any time exactly which drug in what amount is necessary for the patient's well-being. Determining whether or not a given drug is still useful is no problem. However, psychiatric patients regardless of diagnostic category may suffer from several major symptoms at the same time. The "target symptom" concept of treatment simply means that several different drugs may be used in combination to attack co-existent symptoms.

The following are examples of combined therapy useful in common clinical syndromes:

- A phenothiazine and an antidepressant: As an example, amitriptyline might be combined with perphenazine or trifluoperazine in cases of schizophrenia with a significant depressive component or in involutional depression accompanied by a paranoid thought disorder.

- An antidepressant and an anti-anxiety agent: A combination such as phenelzine and chlordiazepoxide can be of value in mild or moderate depression in which tension and anxiety are manifested (Precaution: amitriptyline and chlordiazepoxide used together have been reported to cause a toxic confusional state).

- Two phenothiazines: Chlorpromazine and trifluoperazine, for example, have been of value in certain schizophrenic patients whose symptoms have not been successfully controlled by either agent

alone without troublesome side effects such as excessive retardation or extrapyramidal symptoms.

- Drugs and electroconvulsive therapy: ECT may often be of great value in rapid control of depressive or schizophrenic symptoms. When this procedure is combined with phenothiazines or antidepressants, the course of convulsive treatment can be shortened; drug therapy is then relied upon to allow the patient to make an early return to his usual activities and to prevent relapse.

Side Effects

Side effects and complications in great variety have been attributed to psychoactive drugs. Fortunately, the serious ones are rare, and the common ones may be managed without great difficulty. The basic rule is that the physician must know all the potential hazards of each agent he uses. This will enable him to reassure the patient and take any further action promptly and effectively.

No attempt will be made here to detail all of the numerous side effects which might arise; there are many excellent discussions and reviews easily available.^{1,8} A helpful way to group them in one's mind is offered by the following scheme:

1. *Common, not serious:* This includes the autonomic reactions such as dryness of the mouth and constipation. Other examples are extrapyramidal syndromes and dermatitis.

2. *Less common, not serious:* Endocrine effects such as lactation, edema, temperature increases or decreases.

3. *Actually or potentially serious:* This group includes blood dyscrasias, hepatitis, hypotension or paradoxical hypertension and seizures.

The following comments are intended to call attention to some special aspects of managing side effects.

- Blood dyscrasias, usually granulocytopenia, are among the most serious of complications. Fortunately, these reactions are exceedingly uncommon. Routine laboratory tests are not recommended in monitoring psychoactive drug treatment. Instead, the physician should be alert to the possibilities and call for appropriate tests whenever there is any suspicion that a serious complication may account for the patient's symptoms (for example, blood cell counts, liver function tests).

- Jaundice at first was rather commonly seen as a complication of chlorpromazine therapy. For unknown reasons this has become rare in recent years. However, hepatic involvement remains a threat in antidepressant therapy, particularly with monoamine oxidase inhibitors.

- Hypotensive reactions may be quite troublesome, particularly in hypertensive patients or in the aged. All categories of drugs may produce this difficulty, but it is most commonly encountered with phenothiazines and antidepressants.

- Imipramine and amitriptyline may occasionally produce toxic psychosis, especially in aging patients or in those who have some brain damage. Such persons may be better treated with diazepam or electroconvulsive therapy.

- Imipramine or amitriptyline should never be used in conjunction with an MAO inhibitor. The result may be a severe reaction involving cardiovascular collapse. A week should be allowed to pass before switching from an MAO inhibitor to imipramine or amitriptyline, or vice versa.

- Extrapyramidal side effects are frequently concomitant with phenothiazine treatment. These are of three types—Parkinsonism, dystonias and akathisia (pathological restlessness). All can be managed with anti-Parkinsonian drugs and/or reduction of dosage, if feasible. It is advisable to anticipate the onset of these complications and to give prompt treatment, since they may be quite distressing to the patient, particularly dystonias. Akathisia must be recognized for what it is; the unwary may mistake it for mounting nervousness or agitation and increase the drug dosage, thereby producing an intolerable akathisia.

- The most important element in successful management of nearly all side effects is confident reassurance by the physician. This can only arise from the physician's own knowledge, skill and comfort in meeting the problems. For example, if a patient taking phenothiazines presents herself with edema of the ankles or lactation, and the physician is unaware that these may be harmless concomitants of the drug, a frantic and futile search for the systemic source of the symptoms might ensue. Although the complete list of possible side effects is an imposing one, large numbers of patients have tolerated these drugs well and feel the subjective benefits they perceive far outweigh the discomforts of minor side effects.

Precepts and Pitfalls

The most serious sources of error in using phenothiazines lie in widespread misconceptions as to what is an adequate dosage and what is optimal duration of treatment. The information supplied by the manufacturers understates the dosage level needed by most psychotic or ex-psychotic patients. Forrest and coworkers⁵ make an excellent and well-documented plea for revision of opinion as to what constitutes a "high" dose. They pointed to those

psychotic patients who are restored to health on carefully adjusted maintenance dosages of drugs while in the hospital. Too often these people are then given follow-up care by physicians who are uneasy with what they feel to be too large a dose of the drug being used. Hence the dose may be reduced prematurely, relapse and return to hospital following to make a sad cycle of iatrogenically recurrent psychosis.

The problem is further compounded if the physician feels that a few months of post-hospital treatment should be sufficient for patients whose symptoms have subsided. The literature is filled with reports of people who must take drugs for many years in order to maintain remission.^{4,6,17} Since phenothiazines are non-addictive and well tolerated by most patients, a physician's urgency to discontinue medication is difficult to understand. When in doubt, the physician is advised to confer with those who treated the patient during his stay in hospital so that a rational, long-range plan may be worked out. It is easy to be misled by the benign appearance of a psychotic patient in remission and to conclude that drugs are no longer needed. The physicians who treated him in the active psychosis may have more respect for the potential of symptom recurrence.

Sometimes the patient is either not reliable or is resistant to the idea of continuing a drug regimen. In such cases the responsible family members should be made to understand the importance of the medication and their role in seeing that the patient follows the program faithfully.

The same rules of adequate dosage and length of treatment apply to persons experiencing a psychotic illness, but for whom confinement in a hospital can be avoided. Not before a needed drug is given in dosage to the point of tolerance, even though significant side effects occur, should it be abandoned as a failure. Furthermore, inadequate dosages may only partially suppress the psychosis, leaving it to smolder. A later flare-up of symptoms then might confront the physician with a chronically psychotic patient relatively resistant to treatment.

It must be borne in mind that drugs in themselves solve no human problems. Medicines are simply an adjunct to total treatment, given in the context of an understanding and supportive physician-patient relationship. It is essential to listen to the patient and understand his difficulties in living. Frequently, medications will help the patient by reducing his anxiety and confusion to a point where he is better able to assess his problems and work constructively toward solving them. Discussions with the physician then become even more necessary and productive. No psychoactive drug should be given

in an offhand manner, as a way of "disposing of" a troublesome or perplexing patient.

The temptation to try out each newly-introduced psychoactive agent must be overcome. Chances are very slim that the new will offer any considerable advantage over the older and more familiar drugs, and using the new and untried entails the disadvantage that the physician does not have the experience and assurance he has gained with the older drugs. He should become thoroughly acquainted with a few agents in each category—with psychoactive drugs, familiarity breeds facility.

That the patient at one point is taking what seems to be his optimal dosage cannot be assumed to mean that the optimal will never change. Each patient must be watched carefully for recurrences or changes of symptoms which may signal the need for an increased dosage. Others may begin to show such side effects as drowsiness or lethargy while taking a previously well tolerated dosage, and this may indicate that a reduction in dosage is in order. Or, if a growing depression is manifested, the therapist may wish to add an antidepressant to the regimen. Often changes in the patient's environmental situation, such as a new job or different living arrangements, may make a change in the drug regimen desirable.

The principle is that each individual's response to psychoactive drugs is idiosyncratic, that the response may vary between one person and the next and may vary in the same individual from one time to another. Hence the need for clinical alertness is obvious.

For Further Reference

A brief review such as this one can only touch on some of the broad principles and approaches to effective psychopharmacologic therapy. Numerous questions arise in the course of daily practice which can be satisfied only by further study and reference. The following are recommended sources for the non-psychiatric physician:

- The short volume by Benson and Schiele¹ is concise and authoritative. It may be thought of as a *handbook of psychopharmacology* for non-psychiatric physicians.

- Kalinowsky and Hoch's classic volume¹⁰ on somatic therapy in psychiatry has recently been revised to include extensive treatment of the psychoactive drugs in addition to the previous sections on electroconvulsive therapy, insulin coma therapy and other somatic methods. It may best be considered as a work for special reference or as a book for those with an unusual interest in psychiatric treatment.

• The volume by Ruesch and coworkers¹³ on psychiatric care includes four chapters which set forth detailed guidelines for clinical psychopharmacotherapeutics. This book is recommended particularly to those who wish to know more about psychiatric management in general rather than restricting themselves to psychopharmacology.

The Place of Consultation

Personal experience, study and references will not be enough to meet every clinical situation. Troublesome, risky or unclear cases justify seeking psychiatric consultation, which may be aimed at such matters as diagnosis, choice of appropriate drugs, management of side effects, the indications for electroconvulsive therapy, whether hospitalization is necessary or not and many other questions. All physicians who deal with mentally disturbed patients will do well to select a psychiatric consultant in whom they have confidence. However, it is well to keep in mind that not all psychiatrists have interest, experience or skill in psychopharmacology.

Finally, consultation ought not be delayed until the clinical situation has become critical. Prompt clarification of a problem case may be the means of avoiding a stay in hospital, deterioration of the illness or even suicide.

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CASE REPORTS

Thrombotic Thrombocytopenic Purpura

Association with
Metastatic Gastric Carcinoma
and a Possible Auto-Immune Disorder

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THROMBOTIC THROMBOCYTOPENIC PURPURA (TTP), a relatively rare disease—there are approximately 140 reported cases—has aroused a great deal of speculation as to its cause. Many observers^{1,3,13} have suggested that this entity represents a hypersensitivity state caused by infection, drugs and immunization procedures with the development of an auto-immune process involving the smaller blood vessels, red cells and platelets.^{1,9}

The subject of this report is the unusual and previously unreported occurrence of TTP in a patient who had hemolytic anemia and thrombocytopenia due to metastatic gastric carcinoma.

Report of a Case

A 37-year-old Mexican nursery laborer was admitted on March 29, 1960, with epistaxis of five days' duration, vertigo and blurred vision. A similar episode of epistaxis had occurred five months previously. In 1945 he had been told that he had hypertension, but he did not seek medical attention. He admitted to a heavy alcoholic intake of many

years' duration, and he said that during the previous year he had had occasional epigastric distress which was relieved by food.

The patient was thin and pale, but appeared in no distress. The pulse was 100, the blood pressure was 110/70 mm of mercury and the temperature 99.4°F. On examination of the eye grounds, a grade III hypertensive retinopathic state was noted. An old blood clot was noted in the right nostril. The remainder of the examination was within normal limits.

Laboratory examinations on admission showed hemoglobin of 6.3 gm per 100 ml, a hematocrit of 22 per cent and leukocytes numbering 8,737 per cu mm with a differential of 65 per cent polymorphonuclear leukocytes, 28 per cent lymphocytes, 6 per cent monocytes and 1 per cent basophiles. Platelets numbered 32,000 per cu mm. The blood urea nitrogen, fasting blood sugar, result of serologic test for syphilis, Coombs test (direct and indirect), and urinalysis were negative or within normal limits. The prothrombin content (Owren) was 67 per cent. Total bilirubin was 1.6 mg per 100 ml with the direct fraction 0.1 mg per 100 ml.

On the day of admission a transfusion of two units of whole blood was given. The following morning the patient vomited a large amount of dark red blood, and six more units were given. An esophogram and an upper gastrointestinal series were technically unsatisfactory. Bone marrow aspiration revealed intense erythroid hyperplasia, moderate myeloid hyperplasia with decreased lymphocytes, and decreased megakaryocytes. An active marrow with follicles and adequate megakaryocytes were seen in sections of the bone marrow clot. The peripheral smear contained hypochromic normocytic red cells with anisocytosis, basophilic stippling, occasional target cells, moderate spherocytosis and a moderate number of normoblasts. The platelets were slightly reduced in number and were of giant size. The white blood cells appeared to be normal with an occasional metamyelocyte and a decreased number of lymphocytes. Negative or normal results were obtained in the Quick prothrombin time, partial thromboplastin time, Ivy skin bleeding

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time, Lee-White clotting time, clot retraction and tourniquet test.

During the following week, the patient seemed to improve, but did have one episode of epistaxis which subsided spontaneously. Liver function tests revealed a total bilirubin of 2.4 mg per 100 ml with a direct fraction of 0.4 mg per 100 ml, thymol turbidity of 5.2 units, serum glutamic oxaloacetic transaminase of 110 units and normal or negative values for the total serum protein, albumin, globulin, alkaline phosphatase and cephalin flocculation determinations. An electrocardiogram was interpreted as normal. X-ray examination of the chest revealed a diffuse reticular and nodular pattern throughout both lung fields.

Additional transfusions had to be given to maintain adequate hemoglobin levels, and the platelet count remained at thrombocytopenic levels as shown in Chart 1. At no time was there any evidence of purpura. A positive indirect Coombs test with anti-Lutheran specificity was demonstrated, and this was thought to be secondary to the multiple transfusions. Subsequent indirect Coombs tests were all negative. The serum indirect bilirubin and urinary urobilinogen remained elevated with no detectable urinary bilirubin. Two lupus cell preparations were negative. Prednisone, 60 mg per day, was then started in an attempt to decrease the hemolytic process.

A second gastrointestinal roentgen examination showed an irregularity along the lesser curvature of the stomach near the incisura angularis, which represented a shallow gastric ulcer. Gastroscopy was performed and an ulcer, 1 × 1.5 cm in diameter, malignant in appearance, was seen on the left limb of the angulus.

A strict "ulcer regimen" was prescribed. Prednisone was reduced to 40 mg per day and continued

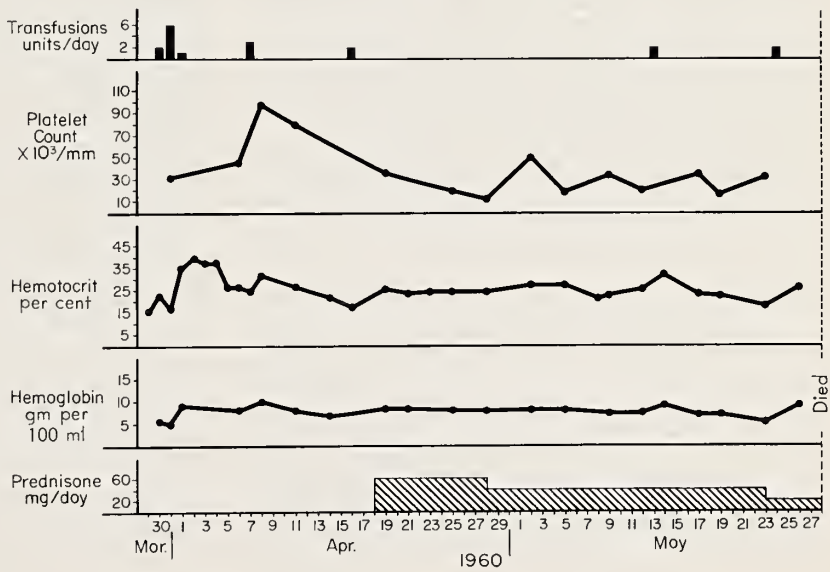
despite the ulcer, since the half-life of chromium 51 labeled red cells was only three days. Radioisotope studies also revealed Fe⁵⁹ disappearance in 40 minutes, a plasma iron turnover rate of 81 mg per day and a red cell iron turnover rate of 28.35 mg per day.

During the patient's fifth week in the hospital, enlarged, freely moveable left supraclavicular nodes, approximately 2 × 3 cm, were noted. Microscopic examination of a specimen from a node in this area revealed undifferentiated medullary carcinoma.

The patient complained of numbness over the left side of the face, left arm and left leg. As before, results of a neurological examination were within normal limits. The biopsy site continued to ooze, and became infected with hemolytic *Staphylococcus aureus* coagulase-positive organisms. Appropriate antibiotics were started and transfusions were continued. The patient's condition deteriorated and he died May 28, 1960.

At autopsy an infiltrating ulcerated gastric carcinoma was seen on the lesser curvature approximately 6 cm from the pylorus. It was 4 cm in diameter and had elevated, firm, thickened, edematous rolled edges. On microscopic examination of this lesion, the wall was seen to be penetrated by malignant epithelial cells that extended through the entire muscularis (Figure 1) and involved the serosa and lymph nodes which were contained within the serosa. Metastatic lesions were observed in regional lymph nodes, lungs (Figure 6), mediastinal lymph nodes, supraclavicular lymph nodes and the lumbar vertebrae. Besides the stomach, other areas of involvement with thrombotic thrombocytopenic purpura were the bone marrow (Figure 2), kidneys (Figure 3), adrenal glands (Figure 4), brain (Figure 5), pancreas, lungs and gastrointestinal tract. Microscopically, the thrombi had the typical ap-

Chart 1.—Graph of laboratory results and treatment of patient.



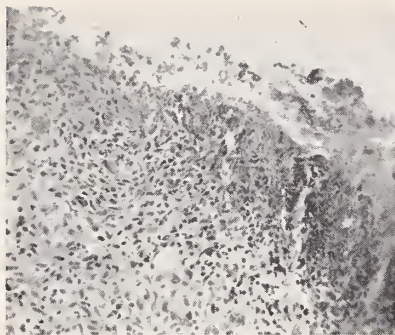


Figure 1.—Stomach. Carcinomatous ulcer with neoplastic cells in ulcer floor in upper half.

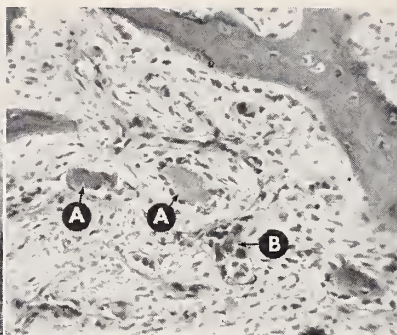


Figure 2.—Bone, lumbar vertebrae. *A*, typical fibrin thrombi in dilated capillaries. *B*, tumor cells in capillary.

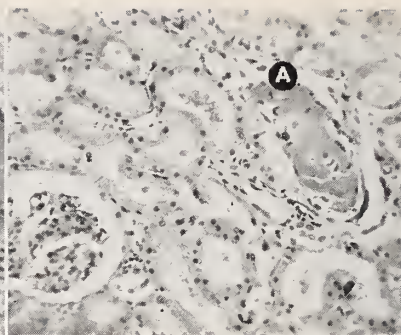


Figure 3.—Kidney. *A*, fibrin thrombus in dilated peritubular capillary.

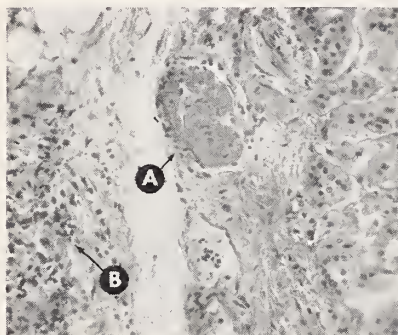


Figure 4.—Adrenal gland. *A*, typical fibrin thrombus in dilated small vascular channel in capsule. *B*, tumor cells invading capsule.

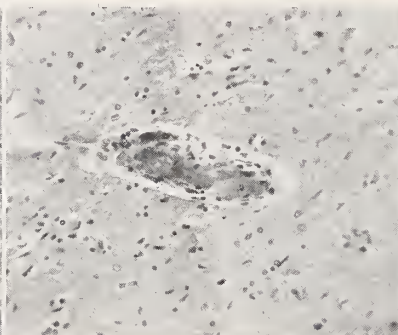


Figure 5.—Brain. Fibrin thrombus in vascular channel, probably dilated capillary.

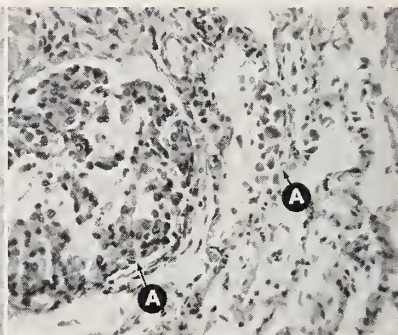


Figure 6.—Lung. *A*, vascular channels with tumor thrombi.

(Figures 1 through 6 all reduced 50 per cent from $\times 270$. All specimens hematoxylin and eosin stained.)

pearance of fibrin thrombi such as seen in thrombotic purpura, with some endothelial proliferation and with attachment of the thrombi to a thickened hyalinized vessel wall. In some areas, the thrombi had the typical bimorphic character as described in the literature. In the thrombi involving the capillaries, and having the typical appearance of thrombotic thrombocytopenic purpura, no tumor cells could be seen within the thrombi. The necropsy findings, therefore, indicated that the patient had a carcinoma of the stomach with extensive metastasis and with the presence of lesions that were classically those of thrombotic thrombocytopenic purpura.

Discussion

The association of metastatic carcinoma and thrombotic thrombocytopenic purpura (TTP) in this case is quite evident since microscopic examination of the heart, adrenal glands and bone marrow revealed both the characteristic lesion of TTP and clusters of carcinoma cells. The combination of metastatic carcinoma with other syndromes has been well documented, but we suggest that in this case the gastric carcinoma may have been responsible

for the development of an "auto-immune" hemolytic anemia and thrombocytopenia due to the development of antierythrocyte and antiplatelet antibodies, or that a single autoantibody was reactive with both cellular components. As the auto-immune process continued with progression of the carcinoma, it would not be unreasonable that antibodies to the smaller blood vessels occurred, causing the fully developed picture of TTP. This progression is in accord with the observations of Adelson and co-workers,¹ who summarized this disorder as a hypersensitivity state involving red blood cells, platelets and vessel walls, and with those of Dameshek,⁹ who has stated that TTP is probably a "triple auto-immune disorder involving three tissues; red cells, platelets and small blood vessels, more or less simultaneously either by a single immunologic abnormality or by multiple ones."

The symptomatic hemolytic anemia of malignant neoplastic disease has been well documented,^{10,41,47} particularly the anemia of gastric malignancy.^{15,46} Hyman^{21,22} showed that the hemolytic anemia in patients with widely disseminated neoplastic disease was due to an extracorporeal factor. Miller²⁷ studied 38 patients with carcinoma and felt that despite

evidence of marrow hyperactivity, the red cell production does not keep pace with the increased red cell destruction and anemia results.

Positive Coombs tests have been reported in only a small number of patients with carcinoma and hemolytic anemia,^{15,23,36} much akin to the small number of patients with TTP and a positive Coombs test.

The proof that TTP is truly an auto-immune mechanism with the demonstration of antibodies has been controversial, since the Coombs test was positive in only a few cases of TTP.^{4,7,16,25,32} Adelson and coworkers¹ were able to detect a shortened red cell and platelet survival time in the case of TTP. Brittingham and Chaplin⁵ found a greatly decreased red cell survival in their patient with a negative Coombs test, and they were unable to demonstrate either leukocyte or platelet agglutinins. These results may indicate that the extra-corpuscular hemolytic mechanism in this disease may not be mediated by globulins,⁴⁰ or that the damaging agent does not become fixed to the surface of the erythrocytes.³⁸ Recently, weakly positive reactions to the Coombs test of the non-gamma globulin type have been found in patients with TTP.²⁸ Additional evidence that an auto-immune process was present can be inferred from the several reported cases in which remissions were induced after splenectomy and/or steroid therapy.*

Stefanini⁴² has suggested that the occurrence of thrombocytopenia in patients with malignant disease may be due to either bone marrow replacement with tumor or an auto-immune process with a hyperplastic marrow unaffected by tumor. He demonstrated platelet agglutinins in three patients with metastatic carcinoma who when first observed had severe thrombocytopenia and a normal complement of bone marrow megakaryocytes. Adsorption studies performed on serum from these patients suggested that neoplastic tissue may represent an antigenic stimulus to the formation of antibodies against formed blood elements. Zucker⁴⁸ was also able to demonstrate platelet agglutinins in three patients with thrombocytopenia and metastatic malignant disease. More interesting was that thrombocytopenia was induced in a normal person who received a transfusion of 100 ml of blood from the patient.

The characteristic lesions of TTP consist of innumerable complete or incomplete occlusions of small arteries, arterioles and capillaries by an amorphous or granular acidophilic material, which Craig and Gitlin⁸ convincingly showed were composed of a derivative of fibrin or fibrinogen. The vessels dilate and may form aneurysms which predominantly involve the arterial-capillary junctional zone.

Interestingly, primary damage to the endothelium followed by formation of platelet thrombi was first suggested by Altschule.² Other observers^{11,19,26,30,45} described the endothelial changes and felt that the primary pathologic lesion was in the vessel wall, with thrombus formation as a secondary event. This has been further substantiated by reports of other cases^{29,31} in which endothelial swelling and proliferation occurred without thrombus formation. Many of the reports postulated a hyperergic reaction of the vessel wall, which led Stuart⁴³ to call TTP a hyperergic microangiopathic condition, as he believed that some factor determines the site of the thrombi on the precapillary arterioles and interferes with arteriole permeability, causing acidophilic material to be found within the wall.

Despite the difficulty in demonstrating specific antibodies in this disease, many possible factors have been implicated. Antes,³ in reviewing the literature, found nine cases that were preceded by upper respiratory infections. Hypersensitivity states to penicillin,¹⁷ sulfonamides,^{11,14} iodine,¹² oxophenarsine⁴⁴ and recent immunization procedures have been associated with TTP. The association in some cases, of TTP and lesions histologically thought to be those of lupus erythematosus^{18,24,37} or with a positive lupus preparation,^{6,34} or the occurrence of TTP in a sibling of a patient with disseminated lupus,³⁹ and the remissions obtained with massive steroid therapy and/or splenectomy* lend support to the idea that an auto-immune hyperergic mechanism may be present.

In several important aspects, the hemolytic anemia and thrombocytopenia of both carcinoma and TTP appear to be alike. There is an extracorporeal hemolytic mechanism with shortened red cell survival, a lack of a demonstrable antierythrocyte antibody, and only a few cases with a positive Coombs test. Similarly, there is a shortened survival time of transfused platelets and an inability to demonstrate platelet antibodies in most of the cases.

It is suggested that in the case herein reported the metastatic gastric carcinoma was responsible for the production of a factor or factors which caused the hemolytic anemia and thrombocytopenia, and that with further progression of the carcinoma either the same factor or a new factor was directed against the smaller blood vessels, causing the typical lesions of thrombotic thrombocytopenic purpura.

Summary

A case of metastatic gastric carcinoma with hemolytic anemia and thrombocytopenia, but without purpura or neurological abnormalities, is presented which at autopsy revealed the typical lesions of thrombotic thrombocytopenic purpura (TTP).

*References Nos. 6, 16, 20, 26, 33, 35.

*References Nos. 6, 16, 20, 26, 33, 35.

A comparison of carcinoma and TTP reveals similarities in the hemolytic anemia, thrombocytopenia and infrequent ability to demonstrate antibodies.

This case lends support to the hypothesis that TTP is probably a triple auto-immune disorder involving red cells, platelets and small blood vessels.

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Rupture of the Normal Spleen and Cancer of the Pancreas

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ALTHOUGH spontaneous rupture of a diseased spleen has been amply documented, the spontaneous rupture of a spleen unmarred by detectable disease, in the absence of trauma, is puzzling and less well known. Nevertheless, a number of such cases have been reported in the past with documentation adequate to make the phenomenon believable. A review of those reports shed some light on the pathophysiologic features of the case reported below, in which spontaneous rupture of an apparently normal spleen preceded the clinical manifestations of pancreatic adenocarcinoma by several months.

Report of a Case

A 51-year-old white man, a postal clerk, was admitted to Kaiser Foundation Hospital in San Francisco on January 11, 1963, with complaint of intermittent epigastric pain of one week's duration. On the day before admission the pain had migrated

to the left subcostal area, involving the left shoulder and back as well. The patient could recall no abdominal trauma or unusual exertion.

He had had preprandial epigastric burning, relieved by antacids, for the preceding two years and for six months had had intermittent melena. He could remember no episodes of icterus, hematemesis or diarrhea. He said that he usually drank about a pint of whisky a week. In 1954, segmental resection of the right lung had been performed for tuberculosis and the disease had remained inactive since.

On physical examination the patient appeared to be in acute distress. He was lying on his right side with knees drawn up. Except for sinus tachycardia, vital signs were within normal limits. The abdomen was flat and bowel sounds were decreased. There was pronounced tenderness on deep pressure and on rebound, with guarding in the left upper quadrant of the abdomen. Result of test of a stool specimen for occult blood was negative.

The hematocrit was 45 per cent. Leukocytes numbered 11,100 per cu mm with a shift to the left. On urinalysis a trace of protein was noted. Serum amylase was 38 units. Three-position x-ray films of the abdomen did not show any significant abnormality.

The patient was treated conservatively with nasogastric suction, anticholinergic agents and parenteral fluids. On the following day, a roentgen study with barium swallow revealed a hiatal hernia with a questionable filling defect in its center. The hematocrit fell to 32 per cent. A test of gastric aspirate for blood was positive. Serum amylase levels remained within normal limits.

On the third day in hospital, several milliliters of bloody fluid was withdrawn at abdominal paracentesis and laparotomy was carried out. Free blood was observed in the abdominal cavity and large clots appeared on exposure of the splenic region. The spleen was removed. After the abdominal cavity was cleansed, exploration, including careful palpation of the pancreas, failed to reveal any abnormality other than an enlarged esophageal hiatus.

Gross examination of the spleen (the weight of which was not recorded, as it was broken on removal) showed a large tear in its posterior margin. On microscopic examination hyalinization of the trabecular arteries was noted. Sections of the capsule in parts remote from the tear showed only slight infiltration with a few plasma cells and neutrophils. The pathologist concluded that "... changes present do not suggest any intrinsic disease of the spleen or any generalized blood disorder."

Examination of blood specimens after operation

Submitted August 13, 1964.

TABLE 1.—Summary of Cases of Spontaneous Splenic Rupture Reported in the Literature

<i>Author</i>	<i>Year</i>	<i>Race Age Sex</i>	<i>Condition at Onset of Rupture</i>	<i>Course</i>	<i>Results of Gross and Pathologic Examination</i>	<i>Follow-up</i>
Skerritt	1878	53 WM	Two months nausea and vomiting; loss of appetite	Died of anemia	Subcapsular clot; microscopic examination not done.	.....
Shorten	1919	43 WM	Chronic bronchitis; abdominal trauma 18 months previous	Survived laparotomy, had cholelithiasis	Capsular tear, microscopic examination normal	Four weeks without sequelae
Connors	1921	38 WM	Alcoholic, active pulmonary tuberculosis, laxative user	Survived laparotomy	Capsular tear; grossly normal spleen lost—no microscopic examination	Died 4 years later of pulmonary tuberculosis
Metcalfe and Fletcher	1922	21 WM 21 WM	Both in good health	Both survived	Capsular tear; microscopically normal	None
Wohl	1925	32 WF	Fever; nausea, vomiting; diarrhea 7 days	Survived laparotomy	Spleen softened; capsule granular and infiltrated with polymorphonuclear cells	Not given
Susman	1928	53 WM	Three months of flatulence plus dyspepsia	Died 3 days after operation	Large splenic hematoma gross and microscopically normal; no other abnormalities at autopsy	Not mentioned
Rhame	1928	25 WM	Good health	Survived laparotomy	New clot in splenic vein; capsular tear, and microscopically normal	One and one-half years without sequelae
Underwood	1929	50 WM	Good health	Died at operation	Old adhesions anterior and posteriorly; slight fibrosis microscopically	Not mentioned
Harvey	1929	44 WM	Chronic cough	Survived laparotomy	Slight enlargement grossly; microscopically normal	Seven weeks without sequelae
Byford	1930	? WM	Good health	Survived laparotomy	Subcapsular hematoma; increased fibrosis and hyalinization at microscopic	Not mentioned
Bailey	1930	20 WM	Good health	Survived laparotomy	Subcapsular hematoma; normal microscopically	Six weeks without sequelae
Nixon	1931	14 WM	Good health	Died 30 hours after operation	No microscopic; splenic tear repaired at surgery intact	Not mentioned
Halliwell	1933	56 WF	Good health	Survived laparotomy	Long splenic pedicle; grossly and microscopically normal except for capsular tear	None
Black	1933	52 WF	Good health	Survived laparotomy	Subcapsular hematoma; microscopically normal	None
Dable	1934	13 WM	Good health	Survived laparotomy	Capsular tear; microscopically normal	None
Young	1935	48 Am. Indian M	Good health	Survived laparotomy	67 gram spleen, grossly soft and flabby; normal microscopically	Three months without sequelae
Zuckerman and Jacobi	1937	29 WF	Good health	Died 2 days after onset of symptoms	Congested with erythrocytes microscopically	Not mentioned
Silverman and Randazzo	1946	46 WM	Good health	Survived laparotomy	Capsular tear; microscopic examination not done	Fourteen months without sequelae

showed no evidence of dyscrasia. On questioning, the patient again denied any trauma to the abdomen. He was discharged in good condition on the fifteenth day in hospital.

Soon afterward the patient began to complain of right upper quadrant and periumbilical pain, nausea, anorexia and lassitude. He was seen at frequent intervals in the outpatient clinics. Roentgenographic examination of the upper gastrointestinal tract revealed only the known hiatal hernia. The collecting systems of the kidneys were poorly visualized on intravenous pyelography. The examination was repeated and the calyces of the right kidney appeared spread apart. The blood urea nitrogen (BUN) was 16 mg per 100 ml and fasting blood sugar was 132 mg per 100 ml. Retention of intravenously administered bromsulphthalein was 7.3 per cent in 45 minutes.

The patient was readmitted to the hospital on May 1, 1963, for evaluation of abdominal pain and loss of weight.

He was slow-moving and emaciated and appeared prematurely old. Body weight, which had been 150 pounds at the time he was previously admitted, was 109 pounds. Blood pressure was 180/120 mm of mercury. Other vital signs were within normal limits. Generalized tenderness of the abdomen was noted. The liver edge was palpable 3 to 4 centimeters below the right costal margin. The hematocrit was 45 per cent, and leukocytes numbered 12,600 per cu mm with a normal differential count.

Cystoscopic examination and retrograde kidney studies, sigmoidoscopic examination, bone marrow studies and liver biopsy yielded no additional diagnostic clues. Results of an oral glucose tolerance test were within normal limits. Further tests of hepatic function were likewise in the normal range. Absorption of orally administered I^{131} -labeled fatty acids and neutral fat was decidedly depressed.

Because of continuing pain, requiring narcotics for control, and the unexplainable loss of weight, laparotomy was performed. The pancreas was observed to be plastered down in the retroperitoneal area in a mass of hard, fibrotic nodules. The entire body of the pancreas was involved. No metastatic lesions were seen in the liver or elsewhere. A specimen of the pancreas was excised for biopsy. The patient's recovery from the operation was uneventful except for an easily controlled attack of acute pyelonephritis.

The biopsy specimen revealed areas of atrophic pancreatitis, with changes indicative of a well differentiated adenocarcinoma of the pancreas.

Discussion

In this case there was close temporal superimposition of two disease processes: first, a spon-

taneous, non-traumatic rupture of an apparently normal spleen, then followed by the clinical appearance of a pancreatic neoplasm which had not been apparent only a short time before. This sequence raises several questions: Is there such an entity as spontaneous rupture of a normal spleen in the absence of trauma—recent or remote? And what is the relationship of the rupture to a nearby cancer not directly involving the spleen?

To elucidate first the possibility that spontaneous non-traumatic rupture of a normal spleen is a possible clinical entity, a survey of the English language literature was undertaken. Some 40 individual case reports were reviewed, dating back to 1874, when Atkinson¹ first described a case. However, careful evaluation of the cases eliminated all but 19 reports,* the others being discarded because of incomplete descriptions or lack of pathologic data, or the likelihood, in retrospect, that an active disease process involved the spleen and predisposed it to rupture.

Data on the remaining cases were tabulated (Table 1). Trauma or unusual stress was satisfactorily ruled out by the authors. Two minor points became evident: first that most of the reports are from the British literature, which may indicate a greater reluctance by American physicians to accept a patient's denial of antecedent abdominal trauma, and, second, that no reports seem to have appeared since the mid-1940's. Perhaps British physicians have come to the skepticism of their American colleagues. It is disappointing that follow-up evaluation in the cases reported was, in most instances, too brief.

It can be seen that in 13 of the cases the patients had been previously in good health. In the other six, the patients had various associated conditions, including chronic alcoholism in two instances. However, in all cases the spleen appeared normal grossly, and in 15 they were normal to microscopic examination. Several observers reported increased spleen pulp fibrosis, with hyalinization of the connective tissue and thickening of the media and intima of intrasplenic vessels. But these findings are consistent with the normal process of splenic aging as described by Wohl.²²

It appears tenable that spontaneous, non-traumatic rupture of a normal spleen can occur. The mechanism causing such a rupture remains a matter of conjecture. Various investigators have discussed theories involving twisting of the splenic pedicle, or venous engorgement due to prolonged Valsalva maneuver, or "back pressure" from the liver. Zuckerman and Jacobi²⁴ also mentioned malformation of the ligaments supporting the spleen, with the resulting inadequate support causing

*References Nos. 2-4, 6, 7, 9, 10, 13-19, 21-24.

twisting of the pedicle, leading to stasis, swelling and finally rupture. There appears to be no experimental work adequate to substantiate any of these theories.

In view of the anatomic and vascular proximity of the two organs it is difficult to explain the relative rarity of splenic involvement in the presence of pancreatic carcinoma. Yet no other cases of spontaneous splenic rupture in association with this neoplasm have been reported. Edwards⁸ demonstrated in cadaver injection studies the ample vascular channels interconnecting these organs. Yet Clifton,⁵ in his extensive review of pancreatic cancer does not even mention the spleen as a site for metastatic involvement. Thompson and Rodgers,²⁰ on the other hand, found an incidence of 7.7 per cent of metastasis to the spleen in pancreatic carcinoma. To obtain further data, all pathologically verified cases of pancreatic carcinoma diagnosed at Kaiser Foundation Hospital in San Francisco were reviewed. Of the 57 cases found in the ten years ending in 1963, only three (5.2 per cent) had splenic metastasis at autopsy.

One may speculate on the possible relationship between this splenic rupture and the well known propensity of pancreatic carcinoma to herald its appearance with migratory thrombophlebitis. This phenomenon seems to occur with greatest frequency when the neoplasm originates in the body and tail of the pancreas. Thus, Kenney,¹¹ after reviewing 9,800 autopsy reports in which there were 30 cases of carcinoma of the head of the pancreas and 21 cases involving the body and tail of the organ, found seven cases of multiple vein thrombosis and ten cases of single vein thrombosis when the carcinoma originated in the body and tail. Multiple vein thrombosis did not occur in any of the cases of carcinoma of the pancreatic head, and single vein thrombosis occurred in only two such cases. Similar data were presented by Thompson and Rodgers.²⁰ In contrast, Lafler and Hinderman¹² found that intravenous thrombosis appeared to be related to the cellular structure of the neoplasm rather than its origin. Carcinomas showing differentiation into ductal and glandular elements were associated with a high incidence of thrombi, in contrast with non-differentiating tumors. Certainly the microscopic cell type of the tumor and the anatomic origin of it in the present case suggest thrombogenic potential both by Lafler and Hinderman's, and by Kenney's criteria. It is unfortunate that the circumstances of the splenectomy and the second laparotomy did not permit examination of the splenic vessels, for a transient splenic phlebitis resulting in engorgement and rupture of the organ could explain the sequence of events in the present case. Rhame's report¹⁵ supports this possibility.

Summary

A case of apparently spontaneous, non-traumatic splenic rupture, followed by the clinical development of carcinoma of the pancreas, is presented. Past reports of spontaneous rupture of the spleen are reviewed.

Possible mechanisms causing this type of rupture are discussed.

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Endotoxin Shock With Massive Adrenal Hemorrhage

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WATERHOUSE,¹⁷ an English physician, in 1911 described the syndrome of adrenal apoplexy in an infant who died with fever and purpura. In 1918 Friderichsen,⁴ a Copenhagen pediatrician, described several similar cases and related them to meningococcemia. Since then, cases have been reported in which adrenal hemorrhage has occurred in the course of other infections.

During the past ten years there has been great interest in the endotoxins of Gram-negative bacteria and their relation to the pathogenesis of shock. A vast body of literature* has accumulated on the source, the chemical nature and the pathophysiologic features of endotoxin. However, the reports of adrenal hemorrhage in association with endotoxin shock are relatively scant. In a recent review Spink¹² emphasized the rarity of this association. The present report is of a case of massive bilateral adrenal hemorrhage which occurred during the course of Gram-negative septicemia and shock. Related to the report is a discussion of the properties of endotoxin as related to the pathogenesis of adrenal hemorrhage.

Report of a Case

The patient was a 38-year-old white man who was admitted to hospital for relapse of pemphigus vegetans for which he had been treated at the time of first diagnosis, confirmed by biopsy, some two years previously. Treatment with steroids and ACTH intermittently had given fair results. Until that illness he apparently had been in good health.

At the time of admittance because of relapse, the blood pressure was 160/110 mm of mercury. Except for numerous bullous and crusted skin

lesions on the face, head and upper extremities, no abnormalities were noted on physical examination.

Prednisone and ACTH were given and the lesions gradually improved. Six weeks after admission, massive gastrointestinal hemorrhage occurred and a subtotal gastrectomy was performed. Two weeks later there was dehiscence of the wound, which was repaired. One week later, the temperature suddenly rose to 104°F. Shaking chills developed and the blood pressure fell to 70/50 mm. Despite vigorous treatment with antibiotics, vasopressors and large doses of steroids, the patient died the next day, nine weeks after admission.

At autopsy, the body was that of a well developed, well nourished man with numerous dried, crusted skin lesions. The surgical incision communicated with the peritoneal cavity where several necrotic and purulent areas were noted. Shock and septicemia were manifested by acute splenitis, "shock kidneys," fatty metamorphosis of the liver and subendocardial hemorrhage. The adrenal glands were so filled with clotted blood that only a rim of cortex could be seen (Figure 1). Microscopically, only a few layers of cortical cells were seen as the adrenal glands were almost entirely replaced by areas of necrosis and thrombus. Blood cultures and cultures of the surgical wound yielded *Escherichia coli*.

Discussion

The changes in the adrenal glands in the presence of pemphigus must be considered before discussing the relationship of endotoxin shock to adrenal hemorrhage. In 1953, Lever⁶ reviewed the autopsy reports on all cases of pemphigus from Massachusetts General Hospital and found notation of

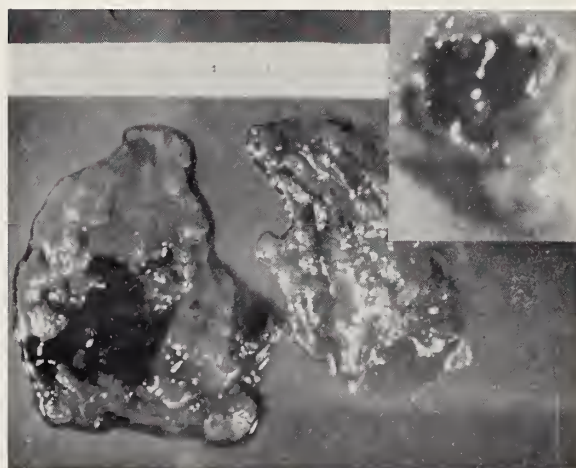


Figure 1.—Adrenal glands almost completely filled with clotted blood. Cross-section (inset) shows only a rim of cortex remaining.

*References Nos. 1, 5, 8, 9, 10, 11, 14, 15, 18.

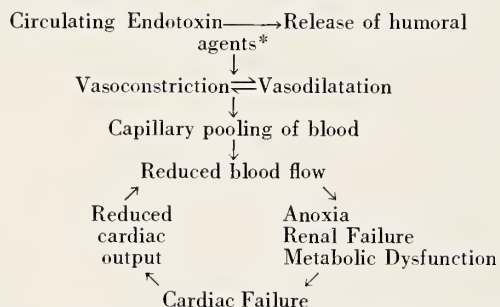
This study was accomplished at the University of Illinois Research and Educational Hospital, Chicago.

Present Address: Research and Development Service, Letterman General Hospital, San Francisco.

Submitted May 26, 1964.

changes in the adrenal glands in about one-third. However, the changes consisted of small, isolated areas of necrosis, unlike the massive hemorrhagic necrosis in the present case.

The endotoxins of Gram-negative bacteria have been shown to possess many interesting properties, some of them having a bearing on the present case. In endotoxin shock, the basic physiologic disturbance is severe vasoconstriction followed by or alternating with vasodilatation and venous pooling of blood. The mechanism by which these events take place is not entirely clear. The effect is evidently vascular. However, if endotoxin is applied directly to the blood vessel walls, there is no reaction. Weil and coworkers¹⁸ showed that vascular changes can be produced in the isolated perfused dog lung only when the perfusate was plasma or blood from an animal pretreated with endotoxin. This experiment leads to the postulation of a mediator or "trigger" substance to explain the effects of endotoxin. During the early phases of experimental endotoxin shock, there are elevated levels of serotonin, epinephrine, norepinephrine and histamine in the blood. The generalized hemodynamic reactions are summarized in the accompanying diagram.



Once capillary pooling of blood and reduced flow of blood occur, a vicious cycle is established, leading to anoxia, to renal failure and to cardiac failure, which in turn reduces the cardiac output and further reduces blood flow.

These effects also operate at the tissue level. Thomas¹⁵ showed that in rabbits pretreated with endotoxin skin necrosis developed at the site of minute intradermal injections of epinephrine. In his study, progressive changes in vascular reactivity to epinephrine were noted, with initial hyper-reactivity followed by vasodilatation. This effect may be blocked by pretreatment with adrenergic blocking agents. In light of these reactions to epinephrine in the presence of endotoxin and because this reaction occurs primarily in tissues with the highest epinephrine content, it has been postulated that adrenal hemorrhagic necrosis is a direct manifestation of a target site reaction.¹³

*Epinephrine, serotonin, histamine, etc.

Another interesting property of endotoxin is the production of the Shwartzman reaction described first in the late 1920's. Dermal hemorrhagic necrosis, the characteristic lesion of the phenomenon, is brought about by an initial intradermal injection of endotoxin followed in 18 to 24 hours by a provoking dose given intravenously. Shortly thereafter, hemorrhagic necrosis is noted at the initially prepared site. If both doses are given intravenously, a generalized reaction is induced, characterized by the presence of bilateral renal cortical necrosis. Pretreatment with cortisone or the administration of a reticuloendothelial blocking agent sets the stage for the generalized reaction so that only one dose of endotoxin is required.¹⁰ In animals subjected to the generalized reaction, hemorrhagic necrosis of the kidneys, heart, spleen, liver, adrenal glands, lungs and brain is noted at autopsy. Although not all the typical pathologic findings were present in the case herein reported, one still must consider this reaction as a possible factor in the pathogenesis of the adrenal hemorrhage. This is especially true in light of the prolonged corticosteroid treatment.

One other important factor is the effect of stress which would certainly be present under the conditions of endotoxemia. It has been postulated that conditions of stress cause liberation of epinephrine which stimulates the pituitary gland to excrete increased amounts of ACTH which in turn produces irreversible effects on the adrenal glandular epithelium. These changes are more subtle than those found in the case herein presented; therefore, stress is probably a small factor in the production of adrenal hemorrhage, if related at all.

Summary

A case of pemphigus is presented in which endotoxin shock and massive adrenal hemorrhage resulted. Although endotoxin shock is not commonly accompanied by adrenal hemorrhage, this association should be considered in the clinical evaluation and represents a definite indication for adrenal steroid therapy.

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EDITORIAL

The Outbreak of Meningitis

THERE ARE MANY MATTERS of great interest in the report on meningococcus infections at Ford Ord in California, by Brown and Condit, which appears in this issue. Happily, this will dispel some of the misapprehensions which have prevailed, although it also suggests the necessity of reevaluation of some old concepts.

Most obviously, this disease is a contact infection and its spread by fomites and similar agents may reasonably be exonerated (blankets, mattresses and the like have received a great deal of attention in this respect). Exposure alone cannot be the reason for clinical disease, because positive throat cultures are found in \pm 20 per cent of the general population, including those before induction into the Armed Services, in University populations and in a variety of civilians without regard to their location in the State. Repeated cultures of the throat seem to indicate that a transient carrier state may occur from time to time in nearly 100 per cent of the population. The *Neisseria* may be regarded as an occasional component of the normal oral flora just as are other organisms which are, from time to time, pathogenic.

Opportunities for infection are thus almost universal; many individuals may become immune by virtue of repeated exposure. Special conditions of increased host susceptibility may well be the most important cause of disease when there is almost a constant opportunity for exposure to so ubiquitous a pathogen. Young children are most commonly affected but late adolescent recruits may simply present similar degrees of special susceptibility. Topley and Wilson,* the most recent authoritative

text of bacteriology and immunology, states: "Fatigue exerts a powerful influence; it is the recruits, unaccustomed to the rigours of military life, who furnish the greater number of cases in the Army. Dopter (1921) tells an impressive story of a party of recruits who made a long fatiguing march to join their regiment at Versailles. On reaching their destination cerebrospinal fever broke out and of 153 men no fewer than 79 were attacked."

The communication by Brown and Condit in this issue of CALIFORNIA MEDICINE (page 171) deserves careful study. Recent seasonal incidence has been in summertime and not, as usually occurs, in winter. Type B, and not Type A which is the strain most frequent in epidemics, has been the prevailing strain recently in carriers and in cases of the disease in California.

The reason for sulfonamide resistance, which was unknown before 1962, provokes speculation regarding possible cause. Conceivably, it is from the widespread prophylactic use of the drug in a circumscribed population.

It should be carefully noted that two-thirds of the strains found in civilians are still sensitive to sulfonamide. The use of sulfonamide in treatment should not be abandoned but the drug should be combined with large doses of penicillin. The previously quoted Topley and Wilson states: "The routine treatment for the ordinary form of disease is by sulfonamides. Penicillin is less effective." It should not be forgotten that, previously, a few strains have been shown to be resistant to penicillin.

The indiscriminate use of either penicillin or sulfonamides for prophylaxis *may* be provocative of further and even more sinister problems of resistance.

The problems of infection, therapy and the appearance of resistant organisms bear striking resemblance to recent similar problems with the ubiquitous staphylococcus. The same situation is to be expected in the future with still other organisms.

EDWARD B. SHAW, M.D.

**Topley and Wilson's Principles of Bacteriology and Immunity*. By Sir Graham S. Wilson and A. A. Miles, 5th ed., Williams & Wilkins Co., Baltimore, 1964.



The Physician and the Community

SEVERAL NATIONAL SURVEYS have shown that the individual physician ranks next only to members of the United States Supreme Court in public esteem. Throughout the United States, at the local level, the physician is probably the most respected member of his community.

There are some good reasons for his stature. First, of course, is his professional skill as a healer. He is the man his neighbors go to for help when they are in pain.

He is most likely to be the most highly educated person in the community. He has had at least eight years of education beyond the high school level—and often much more.

He is above average in intelligence and stamina or he would never have survived the rigid tests of the training program leading to an M.D. degree.

These factors give the physician a prestige that is unique in American life. Whether he likes it or not, they make him a natural leader in the community.

And some physicians apparently don't seem to like it. These are the ones who still live and practice in an ivory tower, believing that is service enough. It isn't enough.

Theodore Roosevelt said: "Every man is, first, a citizen of some community." As a leading citizen, in the eyes of his fellow men, the physician should accept willingly the civic responsibilities that accompany his prestige.

The California Medical Association has always encouraged its members to take an active part in community affairs. Physicians have made themselves

heard for years at the national level when they have been threatened with the federalization of medicine.

That's an important issue, but the town or city you live in is important too. I am convinced that the physician should stand shoulder to shoulder with his neighbors and assume his proportionate share of civic responsibility. Membership in a medical society should not relieve him of membership in his church, the local chamber of commerce or service, civic and other such organizations. It should not exempt him from his duties as a citizen.

We all know how vital it is that the personal relationship between physicians and patients be maintained. (Some of our critics would say it should be restored.) I can't think of a better way to maintain or improve that relationship than by getting involved in community problems and projects.

Through these activities you will learn a great deal more about your patients and neighbors than you ever could discover in your office. You will find out about the realities of their daily lives—how they live and what they think.

I can attest this from many years of work in Beverly Hills with the Chamber of Commerce, the Red Cross chapter, Rotary and other organizations. My experiences have been of tremendous value to me in learning how the people there make their community work. They have given me a liberal education in good citizenship.

I urge you to participate as fully as time allows in local civic activities. Our traditional American freedoms are under attack today at both the national and local levels. Too often the voice of medicine is heard only on national matters.

Let's speak out at the grass roots, too. A community thrives on balanced leadership from all its segments. The medical profession must help if that balance is to be achieved.

James C. Doyle

California Medical Association



NOTICES AND REPORTS

Council Meeting Minutes

Tentative Draft: Minutes of the 507th Meeting of the Council, Los Angeles, Statler Hilton Hotel, January 17, 1965.

The meeting was called to order by Chairman Anderson in the Sierra Room, Statler Hilton Hotel, Los Angeles, on Sunday, January 17, 1965, at 9:00 a.m.

Roll Call

Present were President Doyle, President-Elect Teall, Speaker Quinn, Vice-Speaker Telford, Editor Wilbur and Councilors MacLaggan, Wilson, Todd, Gooel, Taw, Bullock, O'Connor, Ham, Rogers, Murray, Richard S. Wilbur, Miller, Watts, Fenlon, Kay, Kaiser, Anderson, Dozier, Grunigen, Cosentino and, ex-officio, Sherman.

Absent for cause, Secretary Hosmer and Councilors Shaw and Maguire.

A quorum present and acting.

Present by invitation were Messrs. Hunton, Thomas, Clancy, Collins, Klutch, Clark, Goldman, Jones, Moreillon and Bowman, Doctor Miller and Mmes. Griffith and Redfern of CMA staff; Messrs. Hassard and Huber, legal counsel; Messrs. Read, Salisbury, Putnam and Brown of the Public Health League, county executives Baker of Los Angeles, Blankfort of Marin, Colvin of Monterey, Bannister of Orange, Rideout of Butte-Glenn, Marvin of Santa Barbara, Wood of San Mateo, Donovan and Pearce of Santa Clara, Donmyer of San Bernardino, Nute of San Diego, Brown and York of Sonoma; Doctor Malcolm E. Merrill, state director of public health; Mr. J. E. Wedemeyer, director, and Doctor Lester McDonald, medical director, of the state department of social welfare; Doctor Richard Young of

the state department of rehabilitation; Doctor Edward Langdon, associate dean of medicine, University of California at Los Angeles, Doctor Warren L. Bostick, dean of California College of Medicine, Mr. John Pompelli of the American Medical Association, Mr. Robert Garrick, consultant; Doctors T. Eric Reynolds and Paul Hoagland and Messrs. Paolini, Bentley, Heller, Nyron, O'Dea and Wahlberg of California Physicians' Service; Doctor Donald D. Lum and Messrs. Hamman and Oakley of Audio-Digest Foundation; Doctors Robert Klinefelter, Paul Golden and Osman Hull of Monterey County, Arthur Howard of Fresno, Robert Schell of Marin, W. R. Johnston of Santa Barbara, John Knox and Henry Bottzbach of Los Angeles; Doctors Richard O. Myers and H. Russell Fisher of the California Society of Pathologists; Doctors Edgar Wayburn, Dan O. Kilroy, Frank Melone and others.

1. Minutes for Approval

On motion duly made and seconded, minutes of the 506th Council meeting, held December 12, 1964, were approved, with the third paragraph of item No. 13, relating to a Blue Shield test of performance survey, deleted.

2. Membership

(a) A report of membership as of January 13, 1965, was received and ordered filed.

JAMES C. DOYLE, M.D.	President
RALPH C. TEALL, M.D.	President-Elect
WILLIAM F. QUINN, M.D.	Speaker
JOSEPH W. TELFORD, M.D.	Vice-Speaker
CARL E. ANDERSON, M.D.	Chairman of the Council
ALBERT G. MILLER, M.D.	Vice-Chairman of the Council
MATTHEW N. HOSMER, M.D.	Secretary
DWIGHT L. WILBUR, M.D.	Editor
HOWARD HASSARD	Executive Director
JOHN HUNTON	Executive Secretary

General Office, 693 Sutter Street, San Francisco 94102 • 776-9400
ED CLANCY Southern California Office
1515 N. Vermont Avenue, Los Angeles 90027 • 663-8071

(b) On motion duly made and seconded. 12 members delinquent in payment of 1964 or 1963 dues were voted reinstatement.

(c) On motion duly made and seconded in each instance, 13 applicants were voted Associate Membership. These were: Francis Y. K. Lau, John A. Linfoot, Alameda-Contra Costa County; William Bruce Anderson, Alan H. Becker, Grace B. Bell, Ethel Jean Finck, Henry Ibsen Lipson, Constance L. McConnell, Russell LaMonte Poucher, Victor Joseph Rosen, Jr., Ralph R. Sachs, Paul Frederick Slawson, Los Angeles County; William M. Sproul, Santa Clara County.

(d) On motion duly made and seconded in each instance, 14 members were voted election to Retired Membership. These were: Hamilton Rodell Fishback, Alameda-Contra Costa County; Robert M. Colbert, Irene M. Hunt, Curt E. Leuschner, Neil H. Lewis, Joseph Travenick, Jr., Joseph A. Weinberg, Emil Wind, Los Angeles County; Damon Elliott Corbin, Charles W. Rees, San Diego County; Charles P. Mathe, Thomas F. Mullen, San Francisco County; Irving Cassell, Enos Paul Cook, Santa Clara County.

(e) On motion duly made and seconded, reductions of dues were voted for 16 members, for reasons of postgraduate study or prolonged illness.

3. *Committee on State Fee Schedules*

Discussion was held on statistics developed by the Bureau of Research and Planning for the ad hoc Committee on State Fee Schedules. One report is in detail and based on information received in some part on a confidential basis. The other is in condensed form and would not be violative of a confidential status.

ACTION: Voted to release the detailed report to the members of the ad hoc committee for their own use and to release the condensed report to the committee for purposes of negotiation with state officials.

4. *Component Society Officers Conference*

Doctor Edgar Wayburn reported that the annual conference of component society officers, held January 16, had been attended by 181 component society officers and 60 to 70 staff members. Initial responses by attendants indicate a general impression of "good" or "excellent" in evaluating the conference. Further returns will be tabulated in arriving at a final report.

5. *Commission on Community Health Services*

Chairman Kay of the Commission on Community Health Services reported on several items, including:

(a) Resolution No. 16-64, on the subject of Medical Care for All, which is estimated as requiring

additional time for completion of pilot studies in three counties, two of which have been selected.

(b) Resolution No. 37-64, on Health Education in Public Schools, representatives have attended hearings held by an interim committee of the Legislature dealing with Senate Resolution No. 158 and the resolution is considered implemented.

(c) Resolution 38-64, on Driver Fitness, the Committee on Traffic Safety presented a statement outlining a policy under which physicians would confine their reports on individuals to physical findings only and would leave to insurance carriers the evaluation of these and other factors in determining the fitness to drive of a state licensed individual above age 65.

ACTION: Statement on driver fitness approved.

(d) Resolutions Nos. 53-64 and 65-64, on Screening and Immunization Programs, the Committee on Allied Health Agencies presented a statement setting forth the criteria under which such programs would merit medical society support and which stressed the fact that the society make clear to the public that such a program is intended only to identify one disease entity as a part of the entire health picture of each individual.

ACTION: Statement on health screening or immunization programs approved.

(e) Resolution No. 54-64, on Unwed Mothers, the commission presented a statement holding that the physician must assume the role of guidance and teaching and make his services available to individuals, school and other groups and that society speakers' bureaus should be prepared to participate in this effort.

ACTION: Statement on unwed mothers adopted.

(f) Resolution No. 92-64 on physical examinations of teacher candidates, the commission asked that its "Guidelines for a Teacher Health Program in Local School Districts" as approved by the Council in October 1964, be adopted as satisfying the requirements of Resolution No. 92-64.

ACTION: Guidelines approved as implementation of Resolution No. 92-64.

(g) The commission presented a brochure on immunization and requested that it be reproduced at a cost of about \$1,500 for 100,000 copies printed in English and Spanish under the auspices of the Committee on Rural Health.

ACTION: Distribution approved, subject to approval of copy by the Scientific Board.

(h) The Committee on Traffic Safety presented a first aid manual developed by the San Diego County Medical Society and the San Diego police department. It is planned to use the manual as a text for training ambulance drivers.

ACTION: First aid manual approved for use in training ambulance personnel.

(i) The commission called attention to the work of the Humboldt-Del Norte counties disaster medical care unit during the recent floods in those counties.

ACTION: Commendation voted for Committee on Disaster Medical Care of Humboldt-Del Norte Counties, with recognition to be given before 1965 House of Delegates.

ACTION: Commendation voted for CMA Committee on Disaster Medical Care for its action during December floods.

6. *Bureau on Communications*

Chairman Bostick gave a progress report, pointing out that the bureau staff was divided into areas covering information services, services to societies, services to officers, editorial services, special products and material distribution.

Doctor Bostick also reported that CMA television films produced in recent years are now being used in New York State and are under consideration in several other states. He also reported on friendly television editorial comment from Mr. Robert Wood, vice-president and general manager of TV station KNXT, Los Angeles.

ACTION: Commendation of Mr. Robert Wood, vice-president and general manager of station KNXT TV, Los Angeles, voted.

7. *Scientific Board*

Councilor Watts, reporting in behalf of Doctor Edward B. Shaw, board chairman, presented a series of proposed by-law amendments designed to strengthen and improve the organization of the Scientific Board.

ACTION: Approval voted for five bylaw amendments, to be introduced into 1965 House of Delegates.

8. *Department of Public Health*

Doctor Malcolm Merrill, state director of public health, reported that only one case of meningococcic meningitis had developed among the personnel in Fort Ord since last November 26, when basic training was discontinued. Plans are under discussion for reopening the post for basic training in March or April.

9. *Department of Social Welfare*

Mr. Jack Wedemyer, state director of social welfare, reported that the major attention of the department in the past year has been directed at implementing legislation adopted in the past two years. This has required many changes in staffing and direction. Mr. Wedemyer also reported that consider-

ation is being given to a different structure in the department for medical aid to welfare recipients. He answered several questions directed to him by members of the Council.

10. *California Physicians' Service*

Doctor Paul Hoagland, board chairman of California Physicians' Service, reported that the board had reviewed its professional group program for physicians and their employees and because of unfavorable experience in the employee group about 2,000 had voted to transfer this group to the individual family plan at approximately the same dues cost. At the same time, it was voted to continue the present offering to physicians and their dependents for hospital benefits primarily.

11. *Finance Committee*

Councilor Murray, chairman of the finance committee, presented a proposed budget for the 1965-1966 fiscal year and reviewed several areas where decisions involved policy. Among these were continued support of a tumor tissue registry, the attendance of alternate delegates at one or two meetings annually of the American Medical Association and the subsidization of medical libraries.

ACTION: Voted to defer action on the budget item for medical subsidy pending report from Scientific Board.

ACTION: Voted to approve entire budget except for the library item and to authorize the committee to hold a preliminary meeting with the appropriate committee of the House of Delegates.

12. *California Hospital Association*

Mr. Robert Thomas, president of the California Hospital Association, reported on prospective legislation on hospital subjects and invited Doctors Doyle and Anderson to meet with the executive committee of the California Hospital Association on January 29.

13. *Audio-Digest Foundation*

The Council recessed to permit the annual meeting of members of Audio-Digest Foundation, Doctor Donald D. Lum, president, presiding. Doctor Lum reported that the foundation now has more than 8,200 subscribers.

Mr. Claron Oakley reported on the editorial progress of the organization, demonstrated the worldwide business which has been developed and presented comments received from subscribers in various foreign lands.

Mr. K. L. Hamman reported that the business of Audio-Digest was in excellent condition and that annual sales are expected to reach \$1,000,000 by

the close of 1966. To date Audio-Digest has contributed \$206,000 to medical education.

Doctor Teall, chairman of the committee on committees, moved that the board of directors be continued for another year and that for the future the board should seek a balance of representation between the Council of California Medical Association, the Administration of Audio-Digest and scientific members.

ACTION: Present board of directors elected for additional one-year term.

ACTION: Council commended all officers of Audio-Digest Foundation by standing applause.

14. *Commission on Public Agencies*

Chairman MacLaggan reported that the commission wished to see provisions made for assuring that hospitals are operated by qualified persons and pointed out that no such provisions prevail now.

ACTION: Voted to request Committee on Legislation to take such action as is necessary to safeguard the public health in the licensing of hospitals.

He also reported that the hospital advisory board of the department of public health does not now include a physician and the commission feels that adequate representation of physicians is essential.

ACTION: Voted to request the Committee on Legislation to take appropriate action to secure adequate physician representation on the Hospital Advisory Board of the State Department of Public Health.

Doctor MacLaggan also reported that the commission had voted to endorse the activities of the Department of Public Health in working for improvement in the non-physician aspects of the quality of medical care, especially in hospitals and nursing homes.

ACTION: Action deferred to next Council meeting.

The commission recommended approval of its support of pilot studies proposed by Crippled Childrens Services for determining the need of (1) care of neurologically handicapped children, with some financial screening, (2) care of a large group of diseases of rare occurrences, and (3) care of premature infants.

ACTION: Commission support voted for pilot programs, including consideration of reevaluation of physicians eligible to care for Crippled Childrens cases in these categories.

The commission asked approval of a decision reached by its Committee on State Medical Services, urging cooperation between physicians and public health authorities in the reporting of venereal disease and asking that a subcommittee be appointed to implement this action in working with public health officials.

ACTION: Cooperation of physicians with public health authorities voted and authority given for formation of subcommittee of Committee on State Medical Services.

The commission reported a proposed study by the Department of Public Health on the recurrence of congestive heart disease, to include the sending of dietitians and public health nurses into the homes of patients after their discharge from the hospital. Questions were raised as to relative costs of this procedure and hospital costs as well as the ultimate value of such services by ancillary personnel.

ACTION: Voted to inform the coordinating agency that while such studies may be of value, it was felt that they should be undertaken as a specific research project under the auspices of a school of medicine.

The commission approved an accelerated tuberculosis program proposed by the State Department of Public Health, including follow-up of known patients, chest films, skin testing of children and other procedures.

ACTION: Program referred to Scientific Board for study and recommendation.

The Committee on Mental Health presented its report on state hospitals and day care centers begun in 1963 under a state Senate resolution and in cooperation with the Department of Mental Hygiene and asked authority to release it to the state department.

ACTION: Authority voted to release report to State Department of Mental Hygiene and committee commended on completion of a great task.

15. *Report of the President*

President Doyle reported on his recent visits to component societies and his attendance at the AMA conference on an educational campaign on medical care for the aged. He also reported on the issuance of the second progress report on the role of medicine in society, prepared by the California Medical Education and Research Foundation.

ACTION: Second progress report on the role of medicine in society referred to House of Delegates.

16. *Committee on Committees*

Chairman Teall reported that a tentative list of nominations for commission and committee appointments would be sent to the Council in the next week or two for action at the February meeting.

Doctor Miller asked Council approval to prepare a CPS bylaw amendment to provide that the immediate past chairman of the board of trustees be allowed to serve on the board for one additional year.

ACTION: Voted approval for Council to submit a CPS bylaw amendment to allow immediate past

board chairman of California Physicians' Service to serve an additional year on the Board of Trustees.

The committee also requested approval for Council to introduce a bylaw amendment to make appointments of members of commissions for terms of one year only.

ACTION: Question of appointments of commission members for one-year terms re-referred to Committee on Committees for study and later presentation.

Also requested was authority to prepare a bylaw amendment to create a new commission on hospital affairs, which would coordinate all physician-hospital relationships now divided into various activities.

ACTION: Authority voted for Council to prepare a bylaw amendment creating a new Commission on Hospital Affairs.

Doctor Teall, in his own behalf, proposed a bylaw amendment to provide for the vice-chairman of the Council as a member of the Committee for Emergency Action. He pointed out the necessity of this officer being aware of all aspects of problems which might come before the committee in the absence of the Council chairman.

ACTION: Motion tabled.

The committee also recommended that the Committee on Blood and Blood Banking be retained in its original position under the Commission for Community Health Services and taken out of the Scientific Board.

ACTION: Voted to continue Committee on Blood and Blood Banking under the Commission for Community Health Services.

17. *Bureau of Research and Planning*

Chairman Sherman reported that the survey of physician participation in welfare programs had elicited a 55 per cent response in the first three weeks and that a follow-up mailing would not be needed. A report will be prepared for later distribution.

Doctor Sherman also reported that a meeting had been arranged for February 17 between the bureau and the directors or members of closed-panel medical groups, with members of the committee on the Role of Medicine in Society to participate.

18. *Committee on Legislation*

Chairman Kilroy presented a report on legislation pending or anticipated and paid attention to several areas where Council determination of policy was needed. These included:

(a) Reintroduction of two Association measures presented in 1963 as Senate Bill No. 333 and Senate Bill No. 374, both relating to fee payments to physi-

cians by state departments. Because of the time requirements for preparation of state budgets he proposed that the new measures provide a period of time by which the state place its fee allowance on a par with prevalent fees for other types of patients.

ACTION: Approved reintroduction of state fee measures allowing a time interval for their becoming effective.

(b) The committee has been asked to supervise a series of seven measures proposed by the Board of Medical Examiners. Five of these are technical and are not controversial. Of the other two, one would permit the appointment to the Board of Medical Examiners of two members from any one medical school, rather than the one which is the existing limit. Doctor Kilroy proposed that the amendment provide that not more than one full-time professor of a medical school might serve on this board. This would not affect clinical faculty members.

ACTION: Approval voted for amending law to provide that not more than one full-time faculty member of any one medical school might serve on the Board of Medical Examiners.

A second proposed amendment would permit foreign medical graduates who are placed in teaching positions in university teaching hospitals to occupy such positions for as long as five years. Doctor Kilroy proposed that this measure be amended by providing that time spent under this program should not be applicable to the time required for licensure of foreign school graduates.

ACTION: Voted approval for amendment to proposed legislation, making time spent in teaching positions not applicable for meeting the provisions of law relating to foreign medical school graduates for state licensure.

19. *State Colleges-Student Health Services*

Doctor Gooel presented a resolution adopted by the Trustees of the State College System of California, in which this body declared it to be in the public interest for student health services at state colleges to make greater use of community medical services and resources. This would permit the extension of prepayment plans such as now maintained at two state colleges to other campuses.

ACTION: Program of utilization of community health services and resources for student health services in state colleges approved in principle.

ACTION: The Commission on Community Health Services and Dr. Gooel authorized to contact the University of California and proposed organizations of city colleges and junior colleges to urge the institution of prepaid health care plans similar to those approved for state colleges.

20. *Committee on Paramedical Personnel*

The Council received a progress report from Doctor Arthur A. Kirchner, chairman, which required no action.

21. *Committee on Adverse Drug Reactions*

Doctor Murray, chairman, referred to a report on fatalities from aplastic anemia following the use of chloramphenicol, prepared by the committee in cooperation with the State Department of Public Health.

ACTION: Authority voted for publication of preliminary report on fatalities from aplastic anemia following the use of chloramphenicol.

22. *Staff Report*

Mr. Hassard presented a proposed bylaw amendment which would confer eligibility for election as a member of the House of Delegates on any member who had maintained three years' membership in the California Medical Association, rather than three years in the component society which he would serve.

ACTION: Voted to approve bylaw amendment to make members eligible to serve in House of Delegates after three years' membership in CMA.

23. *Action Committee on Health Care of the Aged*

Doctor Teall reported that the committee had met, had approved plans made to date and had appeared before the Council of the Los Angeles County Medical Association. He also reported that a bill has been introduced into the State Legislature (A. B. No. 5, Casey) which included about half of the proposals advanced by the Association for improving the Kerr-Mills program in California.

Doctor Teall read a letter from the executive vice-president of the American Medical Association relative to the availability of matching funds for state programs promoting the Kerr-Mills approach to health care for the aged and referring to the special meeting of the AMA House of Delegates to be held in Chicago on February 6 and 7. He suggested the advisability of alerting California delegates to the possibility of a caucus the week-end of January 30-31 or at a later date in advance of the Chicago meeting.

ACTION: Authorized CMA payment for delegates, and those alternates who wished, to attend the special session of the AMA House of Delegates.

Adjournment

There being no further business to come before it, the meeting was adjourned at 4:45 p.m.

CARL E. ANDERSON, M.D., *Chairman*

MATTHEW N. HOSMER, M.D., *Secretary*

Staffing Emergency Units in Hospitals

AFTER FULL consideration and discussion, a subcommittee on staffing of hospital emergency units and the Medical Review and Advisory Board recommend the following as a statement of policy concerning the staffing of emergency units in hospitals.

A. The present law and regulations require that all hospitals be prepared to handle emergencies which arise within their walls.

B. Sound considerations of public policy suggest that hospitals and medical staffs, on a community-wide basis, provide emergency care to those who come to the hospital from the outside seeking emergency care. Physicians and hospital representatives should work together in educating the public to the true function of the hospital emergency department and thereby reduce the non-emergency use of the hospital emergency room facilities.

C. The essential ingredient of a medical emergency is the possibility that delay in treatment might be detrimental to health or life.

D. The following concepts and guidelines are recommended for consideration and implementation by hospitals and their medical staffs:

1. Each hospital shall maintain facilities for evaluating anyone who comes to the hospital in an emergency, and arrange for him to obtain necessary medical care.

2. In the more densely populated areas or regions served by two or more hospitals which are located within reasonable proximity to each other (such as within fifteen minutes' driving time under normal conditions), these hospitals and their medical staffs may agree to establish a formal emergency service in one of the hospitals when it can be established that such service will best serve the public interest of that region.

3. The type of medical attendance—specialists, a general practitioner or general surgeon, serving full time or on call—must be determined by the needs

and the existing facilities in the emergency region. For emergency room service there shall be available at all times at least one registered nurse who has had the equivalent of current Red Cross first aid training.

4. When it is impossible to provide medical staffing through voluntary arrangements and it is necessary to employ physicians to provide services, it may be considered acceptable to provide for:

a. The salaried employment by the hospital of one or more licensed physicians under terms or conditions approved by the medical staff which are consistent with the Principles of Medical Ethics and other policies of the American Medical Association.

b. The employment of licensed physicians by a medical partnership or corporation, approved by the medical staff and composed of all or part of the members of the medical staff, with billing and remuneration for such professional services to be on any mutually satisfactory arrangement between the medical partnership or corporation and the employed physicians. Where there is reimbursement through insurance and prepayment mechanisms or other agencies for any part or all of such professional services, the medical partnership or corporation may obtain such

payments. (*AMA Report on Physician-Hospital Relations*; June 1964; pp. 32-33.)

5. In each instance where an emergency service is maintained, the plans for medical evaluation and treatment must be organized and be under the supervision of an individual who is licensed to practice medicine and surgery, and who is directly responsible to the hospital medical staff emergency department committee or regional emergency center medical committee.

* * *

This statement was developed by a subcommittee composed of representatives of the California Hospital Association and the California Medical Association. The California Nurses' Association has also reviewed the statement and feels it would be helpful.

The California Hospital Association Insurance Committee, as well as members of the Medical Review and Advisory Board, feel that this statement should be of assistance to members of the profession and hospital governing boards when they are confronted with problems regarding the staffing of an emergency unit. The recommendations contained in the recent AMA report on physician-hospital relations have been incorporated in this statement.

Respectfully submitted,

LEO J. ADELSTEIN, M.D., *Chairman*
Medical Review and Advisory Board



In Memoriam

BOWMAN, MURDOCK S., Orinda. Died January 9, 1965, in Chicago, aged 44. Graduate of New York University College of Medicine, New York, 1946. Licensed in California in 1952. Doctor Bowman was an associate member of the Alameda-Contra Costa Medical Association.



BREUL, VICTOR G., Los Angeles. Died January 26, 1965, in Los Angeles, aged 45, of heart disease. Graduate of the College of Osteopathic Physicians and Surgeons, Los Angeles, 1944. Licensed in California in 1944. M.D. degree from California College of Medicine, 1962. Doctor Breul was a member of the Los Angeles County Medical Association.



DAVIS, JOHN PEARSON, Santa Ana. Died December 20, 1964, in Orange, aged 64, of metastatic malignant disease. Graduate of Rush Medical College, Chicago, Illinois, 1927. Licensed in California in 1935. Doctor Davis was a member of the Orange County Medical Association.



GENDEL, SAMUEL, Anaheim. Died February 1, 1965, in Anaheim, aged 54, of heart disease. Graduate of the University of California School of Medicine, Berkeley-San Francisco, 1935. Licensed in California in 1935. Doctor Gendel was a member of the Orange County Medical Association.



JOHNSTON, EDWARD JAMES, South Pasadena. Died February 7, 1965, in Pasadena, aged 84, of pneumonia. Graduate of the University of Minnesota Medical School, Minneapolis, 1908. Licensed in California in 1909. Doctor Johnston was a retired member of the Los Angeles County Medical Association and the California Medical Association, and an associate member of the American Medical Association.



KLUMPH, THORP ALEXIS, Woodland Hills. Died November 16, 1964, in Woodland Hills, aged 42, of cancer. Graduate of Western Reserve University School of Medicine, Cleveland, Ohio, 1945. Licensed in California in 1955. Doctor Klumph was a member of the Los Angeles County Medical Association.



MORTENSEN, ELMER SOREN, Santa Monica. Died February 5, 1965, in Santa Monica, aged 59, of heart disease. Graduate of the College of Medical Evangelists, Loma Linda-Los Angeles, 1931. Licensed in California in 1931. Doctor Mortensen was a member of the Los Angeles County Medical Association.



MURPHY, MICHAEL J., San Diego. Died January 17, 1965, in San Diego, aged 66. Graduate of Loyola University School of Medicine, Chicago, Illinois, 1929. Licensed in California in 1940. Doctor Murphy was a member of the San Diego County Medical Society.



NICHOLSON, ROSCOE M., Los Angeles. Died February 9, 1965, in Los Angeles, aged 78, of myocardial infarction. Graduate of Denver and Gross College of Medicine, Colorado, 1908. Licensed in California in 1922. Doctor Nicholson

was a retired member of the Los Angeles County Medical Association and the California Medical Association, and an associate member of the American Medical Association.



NIELSEN, RAY HAMMOND, Redlands. Died January 26, 1965, in Redlands, aged 38. Graduate of the University of Pennsylvania School of Medicine, Philadelphia, 1950. Licensed in California in 1953. Doctor Nielsen was a member of the San Bernardino County Medical Society.



SCHOENFELD, OTTO ERNEST, Los Angeles. Died January 22, 1965, in Los Angeles, aged 76, of acute myocardial infarction. Graduate of Hahnemann Medical College of Kansas City University, Kansas City, Missouri, 1915. Licensed in California in 1923. Doctor Schoenfeld was a member of the Los Angeles County Medical Association.



STONE, EDWARD JOHN, Weimar. Died November 12, 1964, in Weimar, aged 63, of myocardial infarction, arteriosclerotic heart disease. Graduate of Latvijas Universitate, Medicinas Fakultate, Riga, Latvia, 1926. Licensed in California in 1952. Doctor Stone was a member of the Placer-Nevada County Medical Society.



TURNER, SEYMOUR, Salinas. Died January 21, 1965, in Salinas, aged 48. Graduate of New York University College of Medicine, New York, 1941. Licensed in California in 1945. Doctor Turner was a member of the Monterey County Medical Society.



VAN de STEEG, WILLIAM GILBERT, Corona. Died January 21, 1965, in Corona, aged 68. Graduate of the State University of Iowa College of Medicine, Iowa City, 1921. Licensed in California in 1950. Doctor Van de Steeg was a member of the Riverside County Medical Association.



WALDEYER, WILHELM, Union City. Died February 9, 1965, in Union City, aged 84. Graduate of the University of California School of Medicine, Berkeley-San Francisco, 1904. Licensed in California in 1904. Doctor Waldeyer was a retired member of the San Francisco Medical Society and the California Medical Association, and an associate member of the American Medical Association.



WALL, CHARLES C., Los Angeles. Died January 16, 1965, in La Mirada, aged 59, of cerebral hemorrhage. Graduate of the College of Osteopathic Physicians and Surgeons, Los Angeles, 1932. Licensed in California in 1932. M.D. degree from California College of Medicine, 1962. Doctor Wall was a member of the 41st Medical Society.



WILLSON, FRANK COLE, San Bernardino. Died January 14, 1965, in San Bernardino, aged 66. Graduate of Loyola University School of Medicine, Chicago, Illinois, 1926. Licensed in California in 1947. Doctor Willson was a member of the San Bernardino County Medical Society.

PRESIDENTS' DINNER-DANCE

*Presidents' Annual Reception
Gold Room, 7:00 to 8:00 p.m.*

SUNDAY, MARCH 28, 8:00 p.m.

VENETIAN ROOM ♦ FAIRMONT HOTEL

Entertainment: Edie Adams



Dancing to Ernie Heckscher



Sirloin of Beef

Cost: \$15.00 per person, including Reception, tax, tip and cover

ONLY 375 TICKETS AVAILABLE

Your tickets will be held for you at the door to the Venetian Room. A receipt for your check will be sent to you. Please present this receipt at the door for your ticket, Sunday night, March 28 or

Tickets may be picked up at any time Saturday or Sunday between 9 a.m. and 5 p.m. at the ticket booth, Woman's Auxiliary registration desk. Requests for tables for large parties should be sent in one envelope and early.



VENETIAN ROOM—FAIRMONT HOTEL

Choose a location for your table from the floor plan above. All tables seat 10 persons.

MRS. TOM M. FULLENLOVE—*Chairman*
110 El Verano Way,
San Francisco, California 94127

MRS. ROBERT C. COMBS, *Co-Chairman*
OR 195 Miraloma Drive
San Francisco, California 94127

Enclosed is my check for \$_____. Please send me _____ ticket(s) to the
PRESIDENTS' DINNER-DANCE, Sunday, March 28, 1965.

Table Choice _____ or assign next best available _____.
(Number) 1st 2nd 3rd

NAME _____

ADDRESS _____

MAKE CHECKS PAYABLE TO THE CALIFORNIA MEDICAL ASSOCIATION

Workmen's Compensation Law

ADMINISTRATION AND PROVISIONS IN CALIFORNIA, 1964

A Report of the Bureau of Research and Planning, California Medical Association

■ *Within recent months, two publications have become available which describe the operations and administration of the workmen's compensation law in the various states. One of these is State Workmen's Compensation Laws: A Comparison of Major Provisions with Recommended Standards, Bulletin No. 212 (Rev. 1964) issued by the U.S. Department of Labor.* The other is Analysis of Workmen's Compensation Laws, issued by the Chamber of Commerce of the United States.†*

This Report of the Bureau of Research and Planning contains excerpts from these documents as they relate to the Workmen's Compensation system in California. It does not purport to describe all the provisions of the law.

In its publication, the U.S. Department of Labor has indicated the "Recommended Standards" for a number of major provisions of this law, as recommended by the U.S. Department of Labor, International Association of Industrial Accident Boards and Commissions, American College of Surgeons, American Medical Association, or the Council of State Governments. The Recommended Standard for each of the major provisions of Workmen's Compensation laws has been included, wherever available, in this Report in order that California physicians may become aware of the extent to which the law in this State conforms to the Standards recommended by some of the public and voluntary agencies which have an interest in Workmen's Compensation legislation.

THE FIRST PART of the report summarizes selected aspects of the California law by noting the specific provision, the recommended standard, and whether or not California conforms to the standard. The balance of the report contains selected details about

the California Workmen's Compensation system and provides additional information with regard to the other States. The assistance of the Division of Labor Statistics and Research of the California Department of Industrial Relations and the Industrial Accident Commission in reviewing this Report, and in suggesting revisions is gratefully acknowledged.

*Available from the Superintendent of Documents, U.S. GPO, Washington, D.C., 35 cents.

†Available from the Chamber of Commerce of the United States, Washington, D.C., \$1.00.

Analysis of Selected Aspects of Workmen's Compensation California Provisions Compared with Standards Recommended by the U.S. Department of Labor and Other Selected Organizations

Aspect of Workmen's Compensation Law	California Provision	Recommended Standard	Does California Comply?	
Type of Law.....	Compulsory†	Compulsory	Yes	
Employment Covered. { Private.....	Compulsory, all‡	Compulsory, all	Yes	
	{ Public.....	Compulsory, all	Yes	
Nature of Coverage.....	All diseases	Full Coverage	Yes	
Time Limit on Claim Filing.....	1 year from injury or death*	at least 1 year	Yes	
Time Limit on Death Benefit Eligibility.....	1 year after injury*	at least 1 year	Yes	
Medical Care.....	Unlimited	Full benefits	Yes	
Supervision of Medical Care.....	Industrial Accident Commission	Workmen's Compensation Agency	*	
Selection of Physician.....	Employer or Insurance Carrier	Injured Worker	No	
Payment to Physician.....	Fee Schedule	"no higher than private fees"	No	
Waiting Period.....	7 days*	3 days maximum	No	
Retroactive Period.....	49 days*	2 weeks maximum	No	
Medical Benefits..... { Artificial Appliances.....	Yes	Full benefits	Yes	
	{ Other Modifications.....	See text	Full benefits	Yes
Subsequent Injury Fund.....	See text	"broad coverage"	Yes	
Rehabilitation..... { Agency.....	Rehabilitation Department	Rehabilitation division	Yes	
	{ Special Benefits.....	No provision	Special benefits	No
Income Benefits..... { Permanent { Max. pcr cent of Wages.....	61¾ per cent	66 2/3 per cent	No	
	{ Disability { Time Limit.....	Life*	Life	Yes
	{ Temporary { Max. per cent of Wages.....	61¾ per cent	66 2/3 per cent	No
	{ Disability { Time Limit.....	240 weeks	Period of Disability	No
Maximum Benefits for Scheduled Injuries.....		See Text for Details		
Additional Benefits to Illegally Employed Minors.....	50 per cent additional	Double benefits	No	
Fatal Injuries—Benefits to Widows and Children.....		See Text for Details		
Appeal Provisions..... { Administration.....	IAC	State agency	Yes	
	{ Questions Reviewed.....	Law only	Law only	Yes

*See text for additional detail.
†Must cover all employees unless specifically excepted.
‡For exceptions, see text.

Type of Law and Insurance Requirements

CALIFORNIA		
Type of Law	Insurance	Self-Insurance
Compulsory	Required	Permitted

Penalties on Failure to Insure

Misdemeanor. Negligence on part of employer presumed. On continuance of non-compliance for 10 days, mandatory fine of \$300 plus 10-day jail sentence. Compensation may be increased 10 per cent. Employer liable also to suit with defenses generally abrogated, and may also be enjoined from doing business; property subject to attachment.

Approximately one-half of the States have compulsory coverage, while the remainder have elective coverage. California's law is compulsory.

Recommended Standard
The workmen's compensation law should be compulsory.

Coverage

CALIFORNIA	
Employments Covered	
Private	Public
Compulsory as to all Em- ployments.*	Compulsory as to all em- ployments except clerks and deputies serving without re- muneration.
*Note exceptions.	

Exceptions

Domestic servants (unless employed by one employer for over 52 hours a week), newspaper vendors, charity workers, most casual employees,

and volunteer member workers at camps, etc., operated by non-profit organizations. Gardeners if not employed by any one individual about a private dwelling for more than 44 hours a month.

Special Coverage Provisions

Voluntary as to excluded employments. Provides, with exceptions, that all persons who assist a peace officer in active law enforcement at his request are deemed employees of the public entity they serve.

The laws in almost one-half of the jurisdictions make no exemptions based on number of employ-

ees. In over one-half of the States, employers of less than a certain number of employees (from two employees to 15) are exempt from coverage. Minors are covered in all States.

California is considered to meet the recommended standards.

Recommended Standards

1. No exemption of employers based on number of employees.

2. Coverage of agricultural workers in the same manner as other employees.

Occupational Disease Coverage, Benefits and Time Limitations

CALIFORNIA

<i>Administrative Agency</i>	<i>Nature of Coverage</i>	<i>Time Limit on Claim Filing</i>	<i>Time Limitation on Eligibility for Death Benefits</i>	<i>Medical Care</i>	<i>Compensation</i>
Industrial Accident Commission	All Diseases	Disability, 1 year from injury* or last payment†; Death, 1 year after death and in no case more than 240 weeks after injury.	1 year after injury or 240 weeks if following continuous disability.	Unlimited	Same as for accidents including partial disability.

*Date of injury is date when disability and knowledge of cause of disability coincide.
†Last rendering of workmen's compensation benefits to the employee, either by way of payment or disability indemnity or by way of medical treatment.

Complete coverage of occupational diseases has been the trend in recent years. About two-fifths of the States cover only enumerated diseases, usually termed "schedule" coverage; one State makes no provisions for coverage of occupational diseases, except for "extra-hazardous" occupations conducted for gain.

Approximately one-half of the States limit benefits in occupational disease coverage. These benefits are in either duration, or cost, or both.

More than half of the States have a flexible provision relating to the time that a claim must be filed in order that the case may be given favorable consideration.

California meets with the recommended standards.

Recommended Standards

1. Full coverage of occupational diseases.
2. Full medical benefits for occupational diseases.
3. The time limitation for the filing of claims should be at least one year after the date when the employee has knowledge of the nature of his disability and its relation to his job and until after disablement.

Supervision of Medical Care

In less than one-half of the States, the workmen's compensation agency has authority to super-

vise the provision of medical care provided to injured workmen. The legislation in the majority of States makes no specific provision authorizing such supervision.

Less than one-third of the States makes provision for a medical board to serve in advisory or consultative capacity.

In California, there is only *indirect* supervision of medical care vested in the Industrial Accident Commission; there is no medical board or advisory committee. Although the State reportedly meets a recommended standard regarding supervision of medical care the California Medical Association has recommended the establishment of a position of Medical Administrator and the creation of a Medical Advisory Board to strengthen the medical and rehabilitative aspects of the program. There is no recommended standard for a medical advisory board.

Recommended Standard

Supervision of medical care by the workmen's compensation agency.

Selection of Physician

Most of the early workmen's compensation laws placed responsibility for selection of physician on the employer or the insurance carrier. The trend in workmen's compensation legislation is toward

the selection of the physician by the injured worker. Less than one-third of the States permit such initial choice by the injured worker.

The law in California does not provide for initial choice of physician by the injured person; however it does provide that the employee may request and receive one change of physicians to be chosen from a list of at least three provided by the employer and in serious injuries for consultation by physician chosen by employee at expense of employer.

Recommended Standard

Initial selection of physician by the injured worker.

Payment to Physicians

Virtually all of the State workmen's compensation fee schedules provide for scheduled amounts of payment for professional services. In California, as in most of the other States, fees to physicians are less than those usually charged for similar services in private practice. The recommendation of the Council of State Governments is that "All fees and other charges for such medical services shall not be higher than such charges as prevail in the same community for similar services to injured persons . . ." A bill before the State Legislature, supported by the California Medical Association, would provide for the payment of "customary fees paid for the same services by the public at large."

Second or Subsequent Injury Fund

CALIFORNIA

Injuries Covered	Payable by Employer	Payable by Fund	Source of Fund	Special Provisions
Second permanent partial injury which combined with pre-existing permanent partial disability results in 70 per cent or more permanent disability. Second injury must account for 35 per cent.*	Disability caused by the second injury.	Difference between compensation payable for second injury and permanent disability.	Legislative appropriations.	Payments are made on the basis of legislative appropriation by State Compensation Insurance Fund, which acts as the accounting and administrative agent.
*Second injury must account for 35 per cent unless prior disability involved a major member and second injury was to opposite and corresponding member and accounts for at least 5 per cent.				

Virtually all States have some form of second or subsequent injury fund legislation. Most of these laws limit the coverage to loss, or loss of use, of a member of the body. About one-third of the laws provide for the coverage of any prior disability. According to the recommended standard, California is considered to have broad coverage under its second injury fund.

Waiting Period for Income Benefits; Medical Benefits

CALIFORNIA

Income Benefits		Medical Benefits (No Waiting Period)	
Waiting Period*	Retroactive Period	Artificial Appliances Furnished	Other Modifications
7 days	49 days†	Yes	Includes x-ray reports, medical reports and testimony and laboratory fees reasonably required to prove claim.

*If disability continues for longer than stated period, compensation is paid for the waiting period.
†Waiting period also terminated by hospitalization (generally interpreted to mean from the first day following injury if employee is hospitalized at any time as a result of the injury).

The overwhelming majority of State laws provide for a waiting period in excess of three days or retroactive benefits period longer than two weeks. Only a handful specify waiting periods for *not more* than three days with retroactive benefits after two weeks or less.

California is among the States in the former category.

About three-fourths of the States provide complete medical care for accidental injury.

California has no limitations on medical benefits.

Recommended Standards

- 1. A waiting period of not more than three days with retroactive benefits after two weeks or less.
- 2. Full medical benefits for accidents.

Recommended Standard

Broad coverage under second or subsequent injury fund.

Rehabilitation

About two-thirds of the States have no rehabilitation divisions within the workmen's compensation

agency. California has such a division. Referrals are made to the State rehabilitation agency.

A larger percentage of States make no provision for special maintenance benefits during the period of rehabilitation. California is among these States.

Recommended Standards

1. A rehabilitation division within the workmen's compensation agency.

2. Provision for special maintenance benefits during the period of rehabilitation.

Income Benefits for Permanent and Temporary Total Disabilities

CALIFORNIA

Permanent Disability				
Maximum Per Cent of Wages	Maximum Weekly Payment	Minimum Weekly Payment	Time Limit	Amount Limit
61 $\frac{3}{4}$	\$52.50	\$20.00	Life*	None

Temporary Disability				
Maximum Per Cent of Wages	Maximum Weekly Payment	Minimum Weekly Payment	Time Limit	Amount Limit
61 $\frac{3}{4}$ *	\$70.00	\$25.00	240 weeks†	\$16,800

*60 per cent maximum after 400 weeks; maximum life pension rate for 100 per cent disability is \$48.46 per week.
†Within period of five years from date of injury.

Indemnity benefits for permanent total disability are paid for life or for the period of disability in approximately one-half of the States. The balance of the States limit payment by specifying either the period of time for which benefits shall be paid, or the monetary amount that shall be paid, or both time and amount.

California provides benefits for permanent total disability for life or period of disability.

Most of the laws base cash benefits for temporary total disability on varying percentages of average weekly wages, usually 66-2/3 per cent. However, percentages are usually limited by the dollar maximum on payments allowed. The maximum percentages of wages allowed in California as of January 1, 1964 is 61-3/4 per cent.

Recommended Standards

1. Benefits for permanent total disability for life or period of disability.

2. Maximum weekly benefit should be equal to at least 66-2/3 per cent of the State's average wage.

Examples of Maximum Income Benefits* for Injuries

In all but eight States compensation for temporary disability is allowed *in addition* to allowance for the scheduled injury. About half of this number,

CALIFORNIA

Arm at shoulder.....	\$15,750
Hand	12,600
Thumb	2,520
First finger	1,680
Second finger	1,260
Third finger	1,260
Fourth finger	1,260
Leg at hip.....	16,800
Foot	10,500
Great toe	2,100
Other toes	420
One eye	6,300
Hearing one ear.....	2,100
Hearing both ears.....	10,500

*Schedule extremely variable, based on injury, occupation, and age. Figures given based on standard rating a 39-year-old laborer and figures based on major arm and parts thereof. Ratings are made by Permanent Disability Rating Bureau in percentage, not dollar, terms, and serve in an advisory nature only, with final percentages being determined by the Commission itself.

including California, have certain limitations as to period of time. In the remaining eight States, such compensation is *deducted from* the allowance for scheduled injury.

Additional Benefits to Illegally Employed Minors

In about one-third of the States additional compensation is provided in case of injury to illegally employed minors. This compensation ranges from 50 per cent additional to three times the regular rate of compensation; usually the additional compensation must be paid by the employer, rather than by his insurance carrier.

Under California law, the "entire compensation otherwise recoverable shall be increased by 50 per cent" for illegally employed minors.

Recommended Standard

Double benefits to illegally employed minors.

Fatal Injuries—Income Benefits for Women and Children†

CALIFORNIA

Maximum Period	Maximum Per Week		Maximum Amounts	
	Widow Only	Widow Plus Children	Widow Only	Widow Plus Children
Not specified.....	\$70.00	\$70.00	\$17,500*	\$20,500*

*Plus maximum of \$600 for burial expenses.

†Not restricted to widows, but payable to qualified dependents with no specified requirement concerning family relationship.

In about 20 per cent of the States the widow of a deceased worker is paid for life, or until remarriage. Most States, including California, limit benefits to a specific period or amount.

Recommended Standard

Benefits to widow during widowhood.

Administration—Notice to Employer—Claims

CALIFORNIA

<i>Administration</i>	<i>Notice to Employer</i>	<i>Claim Filing</i>	<i>How Claims Are Settled</i>	<i>Award Effect</i>
Industrial Accident Commission	Knowledge of the employer or notification in writing within 30 days	Disability 1 year from date of injury or last furnishing of compensation benefit; death, 1 year after death to 240 weeks after injury.	By agreement on approval of Commission which may order hearing. Disputed cases settled by Commission on application.	Judgment on filing in Superior Court.
	<i>Review by Agency</i>	<i>Modifications</i>	<i>Court Appeals</i>	<i>Attorney Fees</i>
	By Commission from referee's findings.	Reconsideration within 20 days; no modification after 5 years.	To Supreme Court or District Court of Appeal within 30 days.	Reasonable fee fixed by Commission. If court finds no reasonable basis for appeal Commission may award fees as supplementary award.

Appeal Provisions

CALIFORNIA

<i>Administration</i>	<i>Time for Appeal</i>	<i>To What Court</i>	<i>Process and Procedure</i>	<i>Question Reviewed</i>		<i>Basis for Review</i>	<i>Jury Trial</i>
				<i>Law Only</i>	<i>Law and Fact</i>		
Industrial Accident Commission.....	30 days	Supreme Court, or District Court of Appeal	Writ of review	Yes	—	The record	No

Most State workmen's compensation laws are administered by a State agency. A few are administered by the courts. In California, the Industrial Accident Commission, a State agency, administers the program.

The purpose of workmen's compensation legislation is to take settlement of claims, so far as possible, out of the courts.

In most States, *including California*, judicial review is limited to questions of law.

Recommended Standards

1. A State agency should be designated to administer the workmen's compensation law.

2. Judicial review should be limited to questions of law.

Employer's Report of Industrial Injury

The employer is required to file his completed "Employer's Report of Industrial Injury" within

CALIFORNIA

<i>Reporting Requirements</i>		<i>Penalties for Failure to Report: Fines</i>	
<i>Time Limit</i>	<i>Injuries Covered</i>	<i>Maximum</i>	<i>Minimum</i>
Immediately*.....	Death cases*	\$100.00	\$25.00
As prescribed*...	1 day disability or more than first aid*	100.00	25.00

*Insurance carrier and attending physician also required to make report. It should be forthwith by telephone or telegraph in fatal injury cases, but this is in addition to usual report.

five days after injury; within 24 hours when an injury results in death.

(The physician is required to file his "Doctor's First Report of Work Injury" to the Division of Labor Statistics and Research within five days after first treatment. A signed copy of this report should be filed at the same time with the employer's insurance carrier; same penalties apply.)

693 Sutter Street, San Francisco, California 94102.

PUBLIC HEALTH REPORT

MALCOLM H. MERRILL, M.D., M.P.H.
Director, State Department of Public Health

IT IS ESTIMATED that during the current fiscal year more than 32,000 young California men will be rejected from military service for medical reasons alone. Nationally, it is estimated that 316,221 will be rejected for these reasons at the armed forces examining stations.

There are three examining stations in California and the estimated number of rejectees at the centers is: Fresno, 2,832; Los Angeles, 19,025, and Oakland, 10,361.

Last year, Congress authorized a nationwide program of counseling referral and followup of men rejected for medical reasons, with responsibility vested in the U.S. Department of Health, Education, and Welfare.

Governor Edmund G. Brown has designated the State Health Department to initiate the program in our state, with Dr. Nemat O. Borhani, acting chief of the Bureau of Chronic Diseases, in charge.

Program objectives include a system to screen and evaluate the examining station medical records of these men, to counsel the men concerning their needs for health and medical rehabilitation, to provide a systematic referral to their own physicians and community agencies as indicated, and to provide followup in their local communities.

The most important phase of the program once it is under way will be the local followup. The program, at this stage, will be administered by local health departments with cooperation and assistance from local medical societies and health and rehabilitation resources.

Pilot projects have been carried on in New York, Philadelphia and Denver. In the New York project, a total of 13,000 rejectees have been interviewed thus far and referred for medical followup. Forty-two per cent of these were cared for by their private physicians and 58 per cent who were medically indigent received care through other community resources.

Approximately 42 per cent of the cases followed reported no knowledge of previous treatment for the conditions for which they were referred. Almost 50 per cent of these cases had no knowledge of the condition.

Of the total group referred for followup, who were not aware of their conditions, 75 per cent had, in order of frequency, the following conditions:

Hypertension, hernia, genito-urinary tract infection, hearing defect.

The proposed program is that the health department employ a small staff to plan and develop a statewide program and to maintain relationships with the State Selective Service Director, with examining station directors and with public and private health service organizations.

Counselors and staff would be stationed in the three California stations to counsel every medical rejectee and to refer them to the health resources in their local communities which in turn will be responsible for systematic followup.

In Los Angeles the State Health Department's Cancer Epidemiology Unit is providing consultative services to two cancer demonstration projects, both of which are operating from the Los Angeles County General Hospital.

The largest of these projects has as its primary purpose the detection and treatment of carcinoma of the cervix found in pregnancy. More than 50,000 women have been examined in Los Angeles City and County Prenatal Clinics. Since 1961, 128 women have been diagnosed as having cervical cancer and have been treated for this condition.

Women are at present being examined at a rate in excess of 20,000 yearly and it is hoped the County Health Department will soon make this program a permanent and continuing part of its community health services.

The principal aim of the other project is to emphasize, by the use of new procedures of oral cytology, oral cancer detection to dentists and dental students in three major dental facilities in the state. Although this project began very recently and has been examining patients in the three participating clinics for only a few months its success has been considerable.

The major concern is to demonstrate to dental professionals the significance and importance of small lesions which have often been considered to be of only passing interest and to have little connection with early stages of cancer.

Although most of these lesions are benign and disappear relatively quickly, the few that are cancerous need to be discovered in the earlier stages in order to increase the effectiveness of treatment procedures.

NEWS & NOTES

NATIONAL • STATE • COUNTY

ALAMEDA

Civic Center Hospital Foundation, a former osteopathic hospital which was converted to an M.D. hospital in September 1962, following the amalgamation of the doctors of osteopathy and the doctors of medicine in California, has been given full accreditation for a period of three years by the Joint Commission on Accreditation of Hospitals. The hospital, which is located at 40th Street and Shafter Avenue in Oakland, was formerly accredited for a period of one year by the Joint Commission.

LOS ANGELES

The Los Angeles County Heart Association and the Los Angeles Academy of General Practice are co-sponsoring the **Second Annual Cardiovascular Symposium** for Physicians Practicing General Medicine, to be held March 24-25 at the Statler Hilton Hotel.

Guest speaker at luncheon March 24 is Dr. William Dock, professor emeritus of the State University of New York School of Medicine. He will speak on "Post Coronary Care."

The program is being presented in cooperation with the California College of Medicine, Loma Linda University School of Medicine, U.C.L.A. Center for Health Sciences and U.S.C. School of Medicine.

Reservations may be made with the Heart Association, 2405 West Eighth Street, Los Angeles 90057.

SAN FRANCISCO

New slants on such growing public issues as abortion and conception control and the dangers of pesticides, as well as major innovations in continuing medical education will be features of the **17th Annual Scientific Assembly of the American Academy of General Practice** to be held April 12-16 in San Francisco.

* * *

The **Fourth Annual Sterling Bunnell Memorial Lecture** on Reconstructive Surgery will be delivered this year by Dr. J. William Littler of New York City. The lecture will be presented at Lane Hall, Presbyterian Medical Center, Clay and Webster Streets, San Francisco, on April 9, at 8:00 p.m.

* * *

The meeting of the **International Society of Comprehensive Medicine** at the San Francisco Hilton on March 25-27 will bring together scientists from various medical disciplines as well as social, behavioral and physical sciences.

Scientists from interrelated fields will explore population explosion, marital incompatibility, sexual behavior, hypnosis,



DR. JAMES C. DOYLE

President of the California Medical Association is congratulated by a 39-year-old friend on his receipt of the "Man of the Year" award by the Beverly Hills Chamber of Commerce and Civic Association. In the citation accompanying the award, Dr. Doyle was called "Mr. Everything" of Beverly Hills in recognition of his years of leadership in almost all civic betterment organizations.

multifaceted influences on disease patterns noted in different specialties, their control and prevention, according to the announcement of the meeting. Biomedical engineers, aerospace scientists and instrumentation experts presenting practical clinical applications of the current technological revolution will help achieve a "cross-fertilization" with clinicians. Further information may be obtained from William S. Kroger, M.D., 9735 Wilshire Boulevard, Beverly Hills 90212.

GENERAL

Applications are now being accepted for the annual **scholarships for doctors of medicine** which the Italian National Institute of Social Welfare makes available to foreign medical doctors. The scholarships are to be used at the Institute "Carlo Forlanini" of Rome and at the Institute "Principe di Piemonte" of Naples. The Institute of Social Welfare grants the scholarships so that foreign doctors may become acquainted with the Institute's medical facilities and therapeutic systems.

The scholarships consist of free monthly room and board and their duration may vary in length.

Application deadline for the academic year beginning November 1, 1965, is July 31, 1965. Inquiries may be directed to the Consulate General of Italy in San Francisco.

EDUCATION NOTICES

Meetings and Courses

COMMITTEE ON CONTINUING MEDICAL EDUCATION

THIS BULLETIN of the dates of continuing education programs and the meetings of various medical organizations in California is supplied by the Committee on Continuing Medical Education of the California Medical Association. In order that they may be listed here, please send communications relating to your future meetings or postgraduate courses to Committee on Continuing Medical Education, California Medical Association, 693 Sutter Street, San Francisco, California 94102.

KEY TO ABBREVIATIONS AND SYMBOLS

Medical Centers and CMA Contacts
for Postgraduate Course Information

CMA:	California Medical Association For information regarding Postgraduate Institutes and Circuit Courses, Contact: Continuing Medical Education, California Medical Association, 693 Sutter Street, San Francisco 94102. PRospect 6-9400, Ext. 68.
LLU:	Loma Linda University For information on courses contact: W. F. Norwood, Ph.D., Assistant Dean and Chairman, Division of Continuing Education, Loma Linda University School of Medicine, 1720 Brooklyn Ave., Los Angeles, California 90033, ANgeles 9-7241, Ext. 214.
PRES.	Presbyterian Medical Center
MED. CTR.	For information on courses contact: Arthur Selzer, M.D., chairman, Education Committee, Presbyterian Medical Center, Clay and Webster Streets, San Francisco 94115. WEst 1-8000.
UCLA:	University of California at Los Angeles For information on courses for physicians or ancillary personnel contact: Thomas H. Sternberg, M.D., Assistant Dean and Head, Continuing Education, U.C.L.A. Medical Center, Los Angeles, 90024, 478-9711, Ext. 2114.
UCSF:	University of California, San Francisco For information on courses for physicians or ancillary personnel contact: Seymour M. Farber, M.D., Dean, Educational Services and Director, Continuing Education, University of California Medical Center, Room 565-U, San Francisco 94122, MOntrose 4-3600, Ext. 179.
USC:	University of Southern California For information on courses contact: Phil R. Manning, M.D., Associate Dean, Postgraduate Division, USC School of Medicine, 2025 Zonal Ave., Los Angeles 90033, CApiital 5-1511, Ext. 300.
STAN:	Stanford University For information on courses for physicians or ancillary personnel contact: Roy Cohn, M.D., Associate Dean for Graduate Affairs, Stanford University School of Medicine, 300 Pasteur Drive, Palo Alto, DAVenport 1-1200.

*Fee to be announced.

†Hours to be announced.

MARCH

March 15-19—**Advanced Electrocardiography and Vectorcardiography.** Co-sponsored by the Daniel Freeman Hospital and the Los Angeles County Heart Association. Wednesday through Friday evenings at the Daniel Freeman Hospital, Inglewood. Registration fee: \$50. Contact: Walter S. Graf, M.D., program chairman, The Daniel Freeman Hospital, 333 N. Prairie Avenue, Inglewood.

March 17-18—**Cancer Seminar.** Sponsored by the Arizona Division of the American Cancer Society. Pioneer Hotel, Tucson. Wednesday-Thursday. Contact: Darwin W. Neubauer, M.D., 720 North Country Club Road, Tucson 85716.

March 19-21—**Sex Disorders in Clinical Practice: A Program for Physicians.** Friday-Sunday. 20 hours. \$75. UCSF.

March 20—**Treatment of Fractures.** Saturday. 8 hours. \$25. Pres. Med. Ctr.

March 24-25—**Annual Cardiovascular Symposium for the Physician Practicing General Medicine.** Sponsored jointly by the Los Angeles County Heart Association and Los Angeles Academy of General Practice. Statler Hilton Hotel, Los Angeles. Wednesday-Thursday. Contact: Los Angeles County Heart Association, 2405 W. Eighth Street, Los Angeles 90057.

March 27—**Progress in Pediatrics.** Saturday. 8 hours. \$25. Pres. Med. Ctr.

March 28-31—**CALIFORNIA MEDICAL ASSOCIATION 94th Annual Session.** Scientific theme: "Virology." Fairmont Hotel, Mark Hopkins Hotel, San Francisco. Sunday-Wednesday. Contact: Mr. John Hunton, executive secretary, 693 Sutter Street, San Francisco 94102.

APRIL

April 1-2—**California Conference of Local Health Officers Semi-Annual Meeting.** Hyatt House, San Francisco Airport. Thursday-Friday, 9:00 a.m. to 5:00 p.m. Contact: Acton W. Barnes, State Department of Public Health, Division of Community Health Services, 2151 Berkeley Way, Berkeley 94704.

April 2-3—**Joint Manipulation in Perspective.** Friday-Saturday. UCSF. 14 hours. \$40.

April 2-4—**American Society for the Study of Sterility.** San Francisco. Friday-Sunday. Contact: Herbert H. Thomas, M.D., executive secretary, 944 S. 18th Street, Birmingham, Alabama.

April 2-4—**Anesthesiology, Annual Postgraduate Assembly.** Sponsored by the Anesthesia Section of the Los Angeles County Medical Association. International Hotel, Los Angeles. Friday-Sunday. \$20. Contact: Joseph L. Cad-ranel, M.D., secretary, 9430 Kirkside Road, Los Angeles 90035.

April 2-4—**Proctology.** Friday-Sunday. UCSF.*†

April 4-8—**American College of Obstetricians and Gynecologists Annual Clinical Meeting.** Civic Auditorium, San Francisco. Sunday-Thursday. Contact: Robert A. Kimbrough, M.D., director, 79 West Monroe Street, Chicago 60603.

April 5-16—**Prosthetics-Orthotics.** Monday-Friday. 90 hours. \$200. UCLA.

April 7-10—**Emergency Care of the Sick and Injured.** Wednesday-Saturday. 24 hours. \$20. UCLA.

April 7-May 12—**Emotional Aspects of Organic Illness.** UCSF at Stockton State Hospital, Stockton. Wednesday evenings. 12 hours. \$10.

April 8-June 10—**Ward Walks in Rare Diseases.** USC at Los Angeles County Hospital. Thursdays. 20 hours. \$105.

April 8-9—**Current Concepts in Obstetrics and Gynecology.** USC at Statler Hilton Hotel, Los Angeles. Thursday-Friday. 14 hours. \$45.

April 9—**Annual Sterling Bunnell Memorial Lecture on Reconstructive Surgery.** To be delivered by J. William Littler, M.D. of New York City. Lane Hall, Pres. Med. Ctr. Friday at 8:00 p.m.

April 9-10—**Proctology.** Friday-Saturday. UCSF. 13 hours. \$40.

April 9-10—**Clifford D. Sweet Lecture and Two-Day Postgraduate Seminar.** Children's Hospital of the East Bay, Edith Meyers' Auditorium, 51st and Grove Streets, Oakland. Friday-Saturday. Fee: \$25. Contact: Medical Staff office, Children's Hospital of the East Bay.

April 9-15—**American Academy of General Practice.** San Francisco. Friday-Thursday. Contact: Mac F. Cahal, J.D., Volker Boulevard at Brookside, Kansas City 12, Mo.

April 10—**Conference on Ophthalmology.** For Ophthalmologists only. Saturday all day. No fee. Pres. Med. Ctr.

April 10-11 — **Mental Retardation: The Severely Retarded Child and His Problems.** UCSF at Sonoma State Hospital, Eldridge. Saturday-Sunday. 11 hours. \$10.

April 10-11—**The Uncertain Quest: The Teen-Ager's World.** Saturday-Sunday. UCSF.*†

April 22-24—**Inheritable Endocrine and Metabolic Diseases: Prevention, Detention, and Treatment.** Thursday-Saturday. UCSF. 16 hours. \$60.

April 24-25—**Emotional Stresses in the Family.** Sutter Memorial Hospital, Sacramento. Saturday-Sunday. UCSF. 12 hours. \$10.

April 25-30—**Pacific Coast Oto-Ophthalmological Society Annual Meeting.** Hotel del Coronado, Coronado. Sunday-Friday. Contact: George E. Morgan, M.D., executive secretary-treasurer, 960 East Green Street, Pasadena 91101.

April 29-May 1—**Ear, Nose, Throat.** Friday-Saturday. UCSF.*†

April 30-May 1—**Medicine of the Newborn.** Friday-Saturday. UCSF. 14 hours. \$40.

MAY

May 3-4—**Surgery of the Head and Neck.** Monday-Tuesday. 12 hours. UCLA.*

May 3-6—**Anesthesiology Biennial Western Conference.** Vancouver, British Columbia. Monday-Thursday. Contact: Gilbert E. Kinyon, M.D., vice chairman, Governing Board; publicity chairman, 5252 Chelsea, La Jolla.

May 6-7—**Diseases of the Larynx.** Thursday-Friday. 12 hours. UCLA.*

May 6-8—**Ear, Nose, Throat.** Thursday-Saturday. UCSF. 17 hours. \$50.

May 12-14—**Highlights of Modern Ophthalmology.** For Ophthalmologists only. Wednesday-Friday. \$75. Pres. Med. Ctr.

May 13-16—**The Arterial Tree.** Thursday-Sunday. 24 hours. UCLA.*

May 14—**California Heart Association Scientific Sessions.** Mark Thomas Inn, Monterey. Friday. Contact: Marvin A. Epstein, M.D., chairman, California Heart Association, 1370 Mission Street, San Francisco.

May 19-21—**Highlights of Modern Ophthalmology.** Pres. Med. Ctr. Wednesday-Friday. \$75. Contact: Secretary of

the Lions Eye Bank, Pres. Med. Ctr., 2018 Webster Street, San Francisco.

May 20—**San Francisco Society of Internal Medicine Annual Meeting.** San Francisco Golf Club. Thursday. Contact: Charles Barnett, M.D., secretary, 384 Post Street, San Francisco.

May 20-21—**General Surgery.** Thursday-Friday. UCSF. 12½ hours. \$50.

May 21-23—**Laboratory Diagnosis.** Friday-Sunday. 18 hours. UCLA.*

May 27-28—**SAN JOAQUIN COUNTIES—Regional Postgraduate Institute presented by California Medical Association** in cooperation with USC School of Medicine. Ahwahnee Hotel, Yosemite. Chairman: Howard Corbus, M.D., 1300 North Fresno, Fresno.

May 27-June 17 — **Neuropsychiatric Management in Daily Practice.** UCSF in Modesto. Thursday evenings. 8 hours. \$7.

May 29-June 30—**Fourth Annual Medical Centers of Europe.** \$250. USC.

May 31-June 11—**Prosthetics-Orthotics.** Monday-Friday. 90 hours. \$200. UCLA.

JUNE

June 10-11—**Nevada Academy of General Practice Annual Scientific Meeting.** Faculty of USC School of Medicine. Symposium on Gastroenterology. Golden Hotel, Reno, Nevada. Thursday-Friday. Contact: Robert V. Broadbent, M.D., 601 Mill Street, Reno, Nevada.

June 16-19—**California Society of Anesthesiologists Biennial Meeting.** Sahara-Tahoe, Las Vegas, Nevada. Wednesday-Saturday. Contact: Lewis H. Lambert, M.D., chairman, 3001 Laurel Drive, Sacramento 25.

June 23-25—**Childrens Hospital Sixth Annual Pediatric Seminar.** Town and Country Hotel, San Diego. Wednesday-Friday. \$25. Contact: Richard L. Johnston, administrator, Childrens Hospital, 8001 Frost Street, San Diego 11.

June 23-25—**Treatment of Fractures.** USC at Los Angeles County Hospital. Wednesday-Friday. 22 hours. \$80.

June 24-26—**SACRAMENTO VALLEY COUNTIES—Regional Postgraduate Institute presented by California Medical Association** in cooperation with UCLA School of Medicine. Harvey's Resort Hotel, Lake Tahoe. Co-Chairmen: Dixon L. Hughes, M.D., 3320 White Oak Court, Sacramento; Philip J. Reilly, M.D., 6437 Fair Oaks Boulevard, Carmichael.

June 25-27—**Western Conference of Foundations for Medical Care.** Hotel del Coronado, San Diego. Friday-Sunday. Contact: Milo A. Youel, M.D., chairman, San Diego County Medical Society, 3427 Fourth Avenue, San Diego 92103.

JULY

July 16-17—**NORTH COAST COUNTIES—Regional Postgraduate Institute presented by California Medical Association** in cooperation with Loma Linda University School of Medicine. Eureka Inn, Eureka, Chairman: J. Roy Wittwer, M.D., 716 Harris Street, Eureka.

July 29-30—**Recent Trends in Strabismus Management and Treatment.** For physicians in Ophthalmology or EENT only. Thursday-Friday. \$60. Pres. Med. Ctr.

AUGUST

August 30-September 2—**American Hospital Association.** San Francisco. Monday-Thursday. Contact: Edwin L.

Crosby, M.D., director, 840 North Lake Shore Drive, Chicago 11, Illinois.

SEPTEMBER

September 9-11 — **Saint John's Hospital Annual Postgraduate Assembly.** Thursday-Saturday. Contact: John C. Eagan, M.D., director, 1328 Twenty-second Street, Santa Monica.

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E. Macpherson, M.D., Professor of Medicine, LLU, phone: Angelus 9-7241, ext. 201, or Lifelong Medical Learning, Inc., 1832 East Michigan Avenue, Los Angeles 90033, phone: 268-9311, and include speed of his tape recorder (1 $\frac{7}{8}$ i.p.s. or 3 $\frac{3}{4}$ i.p.s.).

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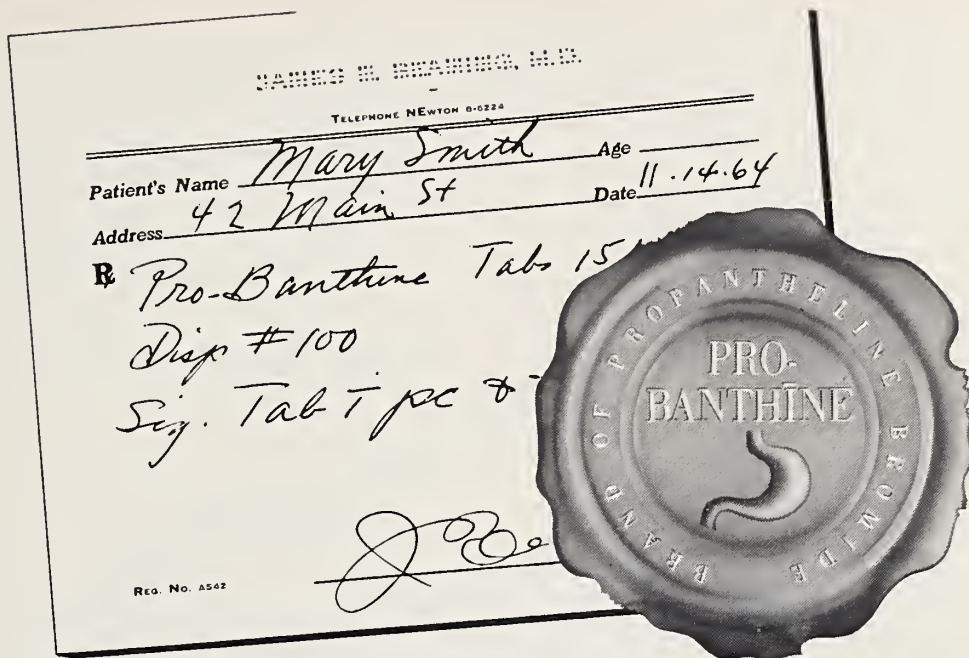
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Corrective Lenses Impractical In Wraparound Sunglasses

It is not feasible to put corrective lenses in wrap-around sunglasses because of the induced astigmatism in glasses so large and so extensive in curvature, according to a consultant to the *Journal of the American Medical Association*.

Writing in the November 2 *JAMA*, Dr. John A. Dyer, Rochester, Minn., added that good quality wraparound sunglasses made of molded plastic cause virtually no distortion.

"Those of cheap quality do produce some distortion because of the irregular surface and varying

density of the plastic material, but even they have proved to be quite satisfactory for outdoor sports activities," he said.

Study Shows Suicide Rates Unaffected by Joblessness

Unemployment, at least in the past decade, has not been an important factor in the causation of suicide, a recent study indicated.

Suicide rates for the years 1954-1961 in 13 principal labor market areas of Pennsylvania were compared with unemployment rates in the same period.

In spite of wide differences between areas in average unemployment rates, there was no evidence of corresponding variation in suicide rates of either men or women, either for the ages 15 to 34 or for the more limited age range of 35 to 64.

The study was reported by Bonnie Walbran, B.A., and Brian MacMahon, M.D., Harvard University School of Public Health, Boston, and Albert E. Bailey, Ph.D., Department of Health, Commonwealth of Pennsylvania, Harrisburg, in the January *Archives of Environmental Health*, published by the American Medical Association.

In Altoona in 1958 unemployment was at one of its highest levels and the suicide rate for men aged 35 to 64 was at its lowest, the study revealed. Lancaster had its highest suicide rate in 1956 when the percentage of unemployed in 1956-1957 was well below the eight-year average, but the suicide rate was at its highest.

Between 1957 and 1958 the per cent of unemployed doubled, or almost doubled, in six of these areas. In two, the suicide rate increased, in three it decreased, and in one it stayed virtually constant.

Although previous studies have shown that the percentage of unemployed is much higher among persons committing suicide than among the related general population, the researchers said they were inclined to believe, on the basis of the Pennsylvania study, that the high proportion of unemployed among suicide victims results from a social or occupational "drift" associated with characteristics of the impending suicide syndrome.

Other studies also have shown a marked correlation existing between male suicide and unemployment rates during the past four decades. Regarding this the researchers commented:

"It may be that this correlation results from correlation of both variables with one or more of the many other social variables that fluctuate in response to economic circumstances.

"On the other hand, it may be that very marked fluctuations in employment rates, such as occurred during the 1930's and 1940's, may indeed be causally associated with suicide in males, but that the type of fluctuation that has occurred more recently being smaller in degree and buffered by improved social security arrangements, may not be associated with changes in suicide risk."

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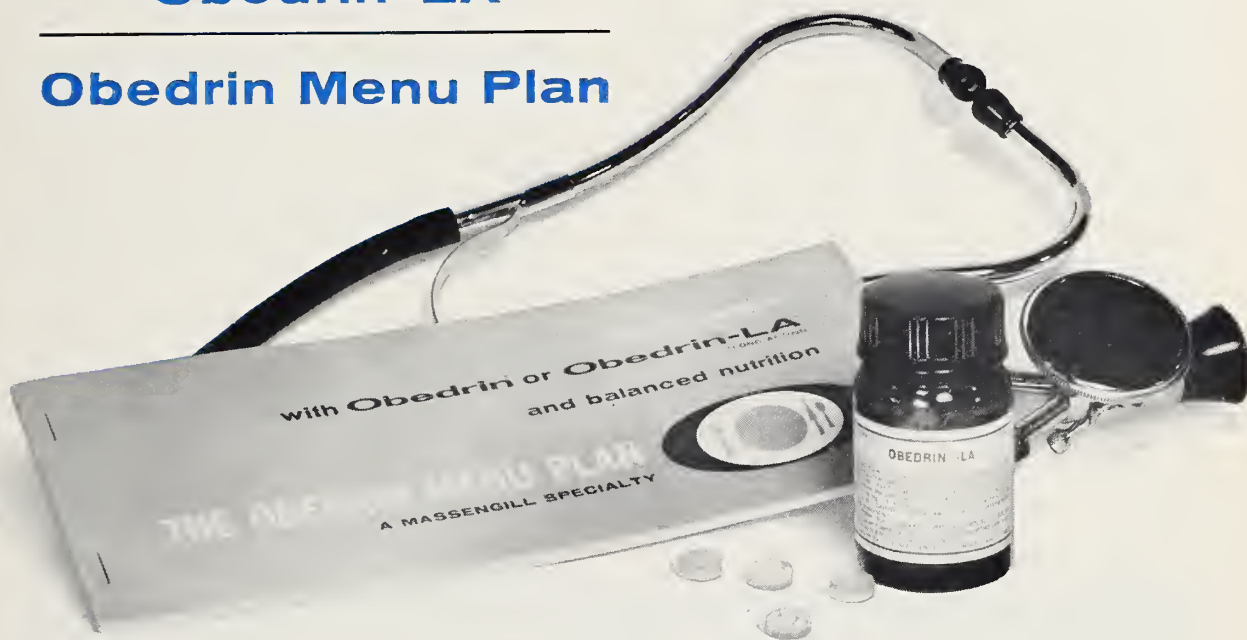
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BOOKS RECEIVED

Books received by CALIFORNIA MEDICINE are acknowledged in this column. Selections will be made for more extensive review in the interest of readers as space permits.

ADDICT AND THE LAW, THE—Alfred R. Lindesmith. Indiana University Press, Bloomington, Indiana, 1965. 337 pages, \$7.50.

CONQUEST OF TUBERCULOSIS—Selman A. Waksman. University of California Press, Berkeley and Los Angeles, 1964. 241 pages, \$5.00.

CONTROL OF GLYCOGEN METABOLISM—Ciba Foundation Symposium—W. J. Whelan, Ph.D., D.Sc., F.R.I.C., Consulting Editor, and Margaret P. Cameron, M.A., Editor for The Ciba Foundation. Little, Brown and Company, Boston, Mass., 1964. 434 pages, \$12.50.

CURRENT PRACTICE IN ORTHOPAEDIC SURGERY, 1964—Volume 2—John P. Adams, B.S., M.D., F.A.C.S., Professor of Orthopedic Surgery and Chairman of Orthopedic Section, The George Washington University School of Medicine and Hospital, Washington, D.C., Editor. The C. V. Mosby Company, Saint Louis, 1964. 231 pages, \$13.50.

DATA ACQUISITION AND PROCESSING IN BIOLOGY AND MEDICINE—Volume 3—Proceedings of the 1963 Rochester Conference; edited by Kurt Enslein, Rochester, N.Y. A Pergamon Press Book, distributed by The Macmillan Company, New York, 1964. 344 pages, \$15.00.

EVALUATION OF PSYCHIATRIC TREATMENT—Edited by Paul H. Hoch, M.D., Department of Mental Hygiene, State of New York; College of Physicians and Surgeons, Columbia University, New York City; and Joseph Zubin, Ph.D., Department of Mental Hygiene, State of

New York; Department of Psychology, Columbia University, New York City. The Proceedings of the Fifty-Second Annual Meeting of the American Psychopathological Association, held in New York City, February, 1962. Grune & Stratton, Inc., New York and London, 1964. 326 pages, \$12.00.

HANDBOOK FOR THE YOUNG DIABETIC—Third Edition—Alfred E. Fischer, M.D., Consulting Pediatrician and Chief of the Children's Diabetic Clinic, Mt. Sinai Hospital, New York City, and Dorothea L. Horstmann, Instructor in Nutrition, Mt. Sinai Hospital School of Nursing, New York City; Intercontinental Medical Book Corp., New York, 1964. 72 pages, \$3.75 (Paperback).

HEART ATTACK: New Hope, New Knowledge, New Life for Those Who Have Suffered a Coronary Thrombosis and for Those Who Have Not but Wish to Avoid It—Revised and Updated Edition—Myron Prinzmetal, M.D., in collaboration with William Winter, patient; with a preface by Walter C. Alvarez, M.D. Simon and Schuster, publishers, New York, 1965. 232 pages, \$4.50 in cloth, \$1.75 in paperback.

HERNIA—Lloyd M. Nyhus, M.D., F.A.C.S., Professor, Department of Surgery, and Henry N. Harkins, M.D., Ph.D., F.A.C.S., Professor and Chairman of the Department of Surgery, University of Washington School of Medicine, Seattle, Editors. Foreword by Sir John Bruce, C.B.E., T.D., M.B., Ch.B. (Ed.), F.R.C.S. (Ed.), Hon. F.R.C.S. (Eng.), Regius Professor of Clinical Surgery, University of Edinburgh, Edinburgh, Scotland. J. B. Lippincott Company, Philadelphia and Montreal, 1964. 836 pages, \$28.50.

HISTOPHYSIOLOGY OF SYNAPSES AND NEURO-SECRETION—Eduardo D. P. de Robertis, M.D., Professor of Histology and Director Institute of General Anatomy and Embryology, Faculty of Medical Sciences, University of Buenos Aires, Argentina. A Pergamon Press Book, distributed by The Macmillan Company, New York, 1964. 244 pages, \$10.00.

HISTORY OF RESPIRATION, A—Leon S. Gottlieb, M.Sc. (Med.), M.D., Instructor in Thoracic Diseases, Loma Linda University School of Medicine, Loma Linda, Calif.; Attending Physician in Thoracic Disease, Los Angeles County General Hospital, Los Angeles, Calif. Charles C Thomas, Publisher, Springfield, Ill., 1964. 121 pages, \$5.75.

HISTORY OF SURGICAL ANESTHESIA—Thomas E. Keys, A.B., M.A., Librarian of the Mayo Clinic, Rochester, Minnesota; Associate Professor of History and Medicine, Mayo Foundation, Graduate School University of Minnesota; Honorary Member American Society of Anesthesiologists. Dover Publications, Inc., New York, N.Y., 1963. 193 pages, \$2.00 (Paperback).

OPPORTUNITIES IN A PSYCHIATRY CAREER—Henry A. Davidson, M.D. Vocational Guidance Manuals (Educational Books Division of Universal Publishing and Distributing Corporation), New York, N.Y., 1964. 144 pages, \$1.45 paper; \$2.65 cloth.

PRACTICAL PAEDIATRIC PROBLEMS—James H. Hutchison, O.B.E., M.D. (Glas.), F.R.C.P. (Lond.), F.R.C.P. (Ed.), F.R.C.P. (Glas.), Professor of Child Health, University of Glasgow; Visiting Physician, Royal Hospital for Sick Children, Glasgow; Consultant Paediatrician, The Queen Mother's Hospital, Glasgow. Year Book Medical Publishers, Inc., 35 East Wacker Drive, Chicago, 1965. 514 pages, \$10.00.

PSYCHOLOGY OF DEAFNESS, THE—Sensory Deprivation, Learning, and Adjustment—Second Edition—Helmer R. Myklebust, Northwestern University. Grune & Stratton, Inc., New York, 1965. 423 pages, \$7.75.

PSYCHOSOMATIC NEUROLOGY—Harry A. Teitelbaum, M.D., Ph.D., Pavlovian Laboratory and Assistant Professor of Psychiatry, The Johns Hopkins University School of Medicine; Assistant Professor of Neurology, University of Maryland Medical School. Grune & Stratton, Inc., New York and London, 1964. 414 pages, \$13.75.

RECONSTRUCTIVE PLASTIC SURGERY—Principles and Procedures in Correction, Reconstruction, and Transplantation—Edited by John Marquis Converse, M.D., Lawrence D. Bell, Professor of Plastic Surgery, New York University School of Medicine; With a section on the hand edited by J. William Littler, M.D., Chief of Plastic and Reconstructive Surgery, The Roosevelt Hospital, New York City. In Five Volumes: Vol. I—General Principles; Vol. II and III—The Head and Neck; Vol. IV—Hand and

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Upper Extremity; Lower Extremity; Vol. V—Trunk, Genito-Urinary; Tissue Transplantation and Burn Shock. W. B. Saunders Company, Philadelphia, 1964. 2253 pages, plus 59 pages of index; Price: \$125 for the set of 5 volumes, or \$25 for Volume IV and \$30 each for the other volumes.

REHABILITATION MEDICINE—A Textbook on Physical Medicine and Rehabilitation—Second Edition—Howard A. Rusk, M.D., Professor and Chairman of the Department of Physical Medicine and Rehabilitation, New York University Medical Center, New York, N.Y., and 36 collaborators. With the editorial assistance of Eugene J. Taylor, A.M. The C. V. Mosby Company, Saint Louis, 1964. 668 pages, \$15.50.

RETINAL VESSELS, THE—Comparative Ophthalmoscopic and Histologic Studies on Healthy and Diseased Eyes—R. Seitz, M.D., First Assistant of the University Eye Clinic, Tuebingen. Translated by Frederick C. Blodi, M.D., Associate Professor of Ophthalmology, State University of Iowa College of Medicine, Iowa City, Iowa. With 363 illustrations, including 32 in color. The C. V. Mosby Company, St. Louis, 1964. 186 pages, \$14.50.

SERUM PROTEINS AND THE DYSPROTEINEMIAS—Edited by F. William Sunderman, M.D., Ph.D., Sc.D., Director, Division of Metabolic Research and Clinical Professor of Medicine, Jefferson Medical College, Philadelphia, Pa.; Director of Education, Association of Clinical Scientists; and F. William Sunderman, Jr., M.D., Director of Clinical Laboratories and Associate Professor of Pathology, University of Florida College of Medicine, Gainesville, Florida. J. B. Lippincott Company, Philadelphia and Montreal, 1964. 461 pages, \$21.50.

SHORT STORY OF MIDWIFERY, A—Irving S. Cutter and Henry R. Viets. W. B. Saunders Company, Philadelphia, 1964. 260 pages, \$8.50.

SIGNS AND SYMPTOMS—Applied Pathologic Physiology and Clinical Interpretation—Fourth Edition. Edited by Cyril Mitchell MacBryde, A.B., M.D., F.A.C.P., Associate Professor of Clinical Medicine, Washington Univer-

sity School of Medicine; Assistant Physician, The Barnes Hospital; Director, Metabolism and Endocrine Clinics, Washington University Clinics, St. Louis, Missouri. J. B. Lippincott Company, Philadelphia and Montreal, 1964. 971 pages, \$14.00.

SMOKING AND YOUR LIFE—Alton Ochsner, M.D. Julian Messner, Inc., New York, 1964. 144 pages, \$3.00.

SURGICAL DISEASES OF THE LIVER—Seymour I. Schwartz, M.D., F.A.C.S., Associate Professor of Surgery, Director of Surgical Research, John and Mary R. Markle Scholar in Academic Medicine, University of Rochester School of Medicine and Dentistry; Senior Associate Surgeon, Strong Memorial Hospital, Rochester, New York. McGraw-Hill Book Company (The Blakiston Division), New York, 1964. 387 pages, \$17.50.

SYNOPSIS OF PATHOLOGY—Sixth Edition. W. A. D. Anderson, M.A., M.D., F.A.C.P., F.C.A.P., Professor of Pathology, University of Miami School of Medicine, Coral Gables, Florida; Director of Pathology Laboratories, Jackson Memorial Hospital, Miami, Florida. The C. V. Mosby Company, Saint Louis, 1964. 883 pages, \$9.75.

TAY-SACHS' DISEASE—Edited by Bruno W. Volk, M.D., Isaac Albert Research Institute of the Jewish Chronic Disease Hospital, Brooklyn, New York. Grune & Stratton, Inc., New York and London, 1964. 158 pages, \$5.75.

YEAR BOOK OF ANESTHESIA (1964-1965 YEAR BOOK SERIES)—Edited by Stuart C. Cullen, M.D., Professor and Chairman, Department of Anesthesia, University of California Medical Center, San Francisco. Year Book Medical Publishers, Inc., Chicago, 1964. 444 pages, \$8.50.

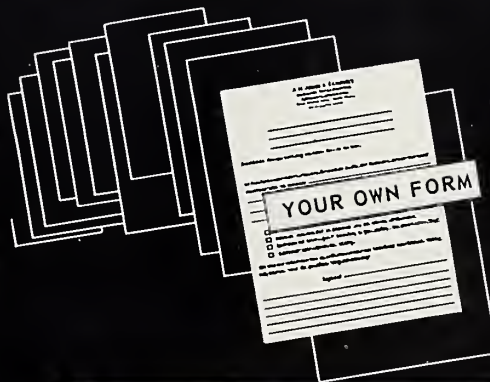
ZINSSER MICROBIOLOGY—13th Edition—David T. Smith, M.D., Professor of Microbiology and Associate Professor of Medicine; Norman F. Conant, Ph.D., Chairman and Professor, Department of Microbiology; and John R. Overman, M.D., Professor of Microbiology and Assistant Professor of Medicine, Duke University School of Medicine; and others. Appleton-Century-Crofts (Division of Meredith Publishing Company), New York, 1964. 1214 pages, \$17.75.

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Most Radiation Victims Recover

Informed medical care can improve a radiation victim's chances, and sometimes make the difference between death or recovery, says an editorial in the March 22 *Journal of the American Medical Association*.

"We should discard mistaken impressions that all radiation injury is irreversible," the editorial said.

"Most of the persons who have been accidentally exposed to radiation have recovered without serious residual effects. With very high doses early death is inevitable, and from very low doses spontaneous recovery is certain."

But it is at intermediate doses, near the lethal level, that informed medical care can have such important effects, said the editorial.

The March issue of the *Archives of Environmental Health*, a publication of the AMA, summarizes current information on diagnosis and treatment of radiation casualties:

When a radiation accident does occur, the site of the accident should be isolated and not disturbed before expert help is available, the *Archives* article said.

Clothing of the injured should be labeled and preserved.

Records of all pertinent information should be made promptly to establish the cause and to help determine the radiation dosage received by exposed persons.

"In general, persons unfamiliar with radiation accidents tend to be excessively fearful of a possible radiation hazard," said the *Journal of the American Medical Association* editorial. "For this reason, they may neglect the care of the patient, simultaneously augmenting the patient's distress by frightened behavior.

"Radioactivity induced in the patient by neutron exposure is no hazard to anyone else. However, if radioactive contamination of the patient has occurred, it may be of sufficient amount to constitute a potential hazard to medical personnel.

"Only by competent monitoring, intelligently interpreted, can the extent of the hazard, if any, be determined, and only by this means can rational management of the situation be arranged," the editorial said.

"Even though the atomic-energy industry has a good safety record and careful management has resulted in fewer accidents than might reasonably be expected, serious radiation accidents continue to occur in the United States.

"As reactors and radioisotope programs increase in number, additional accidents both here and abroad are to be expected, and physicians will inevitably be called upon to give medical care to the injured," the editorial said.

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BRIEF SUMMARY

Arthralgen and Arthralgen-PR are indicated in the management of rheumatoid arthritis, acute gouty arthritis, rheumatoid spondylitis, osteoarthritis, bursitis, fibrositis, and neuritis. Arthralgen may be used for analgesia in colds, flu, and various myalgias.

DOSAGE: One or two tablets four times a day. After remission of symptoms dosage should be reduced to the minimum maintenance level.

SIDE EFFECTS: Nausea, GI upset, or mild salicylism may rarely occur. Symptoms of hypercorticism dictate reduction of dosage of Arthralgen-PR.

PRECAUTION: Reduction in dosage of Arthralgen-PR given over a long period should be gradual, never abrupt.

CONTRAINDICATIONS: Hypersensitivity to any ingredient.

As with any drug containing prednisone, Arthralgen-PR is contraindicated, or should be administered only with care, to patients with peptic ulcer, tuberculosis, nephritis, diabetes mellitus, acute psychoses, Cushing's syndrome (or Cushing's disease), overwhelming spreading (systemic) infection, or predisposition to thrombophlebitis.

Arthralgen-PR is generally contraindicated in patients with uremia and viral infections, including poliomyelitis, vaccinia, ocular herpes simplex, and fungus infections of the eye. It is also contraindicated in patients with chicken pox or susceptible persons exposed to it.

SUPPLY: Arthralgen (white, scored) and Arthralgen-PR (yellow, scored) tablets are available in bottles of 100 and 500.

REF: 1. Boreus & Sandberg, ACTA. PHYSIOL. SCAND., 28:266, 1953.
2. Cohen, et al.: J.A.M.A., 165:225, 1957.

BOOKS RECEIVED

Books received by CALIFORNIA MEDICINE are acknowledged in this column. Selections will be made for more extensive review in the interest of readers as space permits.

ANTICOAGULANT THERAPY IS ISCHEMIC HEART DISEASE—Miami Heart Institute International Symposium. Editorial Board: E. Sterling Nichol, Chairman; and Matthew H. Bradley, Richard A. Elias, Rose E. London, Seymour London, David A. Nathan, Harold Rand, Paul N. Unger, and Rudolph T. Wagner. Grune & Stratton, New York, 1965. 469 pages, \$10.00.

BURNS—A Symposium—Compiled and edited by Leon Goldman, M.D., Associate Dean, School of Medicine and Professor and Chairman, Department of Surgery, and Richard E. Gardner, M.D., Assistant Professor of Surgery, University of California School of Medicine, San Francisco, Calif. Charles C. Thomas, Publisher, Springfield, Ill., 1965. 191 pages, \$7.75.

FREEDOM TO EXPERIENCE—A Study of Psychological Change from a Psychoanalytic Point of View—Benjamin Wolstein, Ph.D., Faculty, W. A. White Institute of Psychiatry, Psychoanalysis and Psychology; Clinical Professor of Psychology, Adelphi University. Grune & Stratton, Inc., New York and London, 1965. 292 pages, \$8.50.

FUNCTION OF NUCLEIC ACIDS IN THE DIFFERENTIATION OF NEOPLASTIC PROCESSES (Academy of Sciences of the Latvian SSR, Institute of Experimental and Clinical Medicine)—Ya. G. Erenpreis. Translated from the Russian by the Israel Program for Scientific Translations, Jerusalem, 1964. Published in the U.S.A. by Daniel Davey & Co., Inc., New York, N.Y., 1965. 148 pages, \$6.25.

FUNDAMENTALS OF ORTHOPAEDICS—John J. Gartland, A.B., M.D., Assistant Professor of Orthopaedic Surgery, Jefferson Medical College, W. B. Saunders Company, Philadelphia and London, 1965. 338 pages, \$8.00.

HUMAN TUMOURS SECRETING CATECHOLAMINES—Clinical and Physiopathological Study of the Pheochromocytomas—Henri Hermann, Correspondant de l'Institut and Professor of Physiology, and René Mornex, Associate Professor of Medicine, Faculté de Médecine, Lyon. Translated by Dr. R. Crawford. A Pergamon Press Book distributed by The Macmillan Company, New York, 1964. 207 pages (No price quoted).

MICRO-ANALYSIS IN MEDICAL BIOCHEMISTRY (Originally written by Earl J. King, M.A., M.D., D.Sc., F.R.I.C.)—Fourth Edition—I. D. P. Wootton, Ph.D. (Lond.), M.A., M.B., B.Chir. (Camb.), F.R.I.C., M.C. Path., Professor of Chemical Pathology in the University of London at the Postgraduate Medical School. Grune & Stratton, Inc., New York, 1964. 254 pages, \$5.50.

NEW PERSPECTIVES IN PSYCHOANALYSIS—Sander Rado Lectures 1957-1963—The Psychoanalytic Clinic for Training and Research, Columbia University, and The

Alumni Association of the Columbia University Psychoanalytic Clinic, New York. Editorial Committee: George E. Daniels, M.D., Chairman; James P. Cattell, M.D.; Terry C. Rodgers, M.D.; Willard M. Gaylin, M.D.; and Daniel Shapiro, M.D. Ex officio: George S. Goldman, M.D., Director of the Psychoanalytic Clinic, and Alvin H. Polantini, M.D., President of the Alumni Association. Grune & Stratton, Inc., New York and London, 1965. 328 pages, \$9.50.

PHARMACOLOGY AND THERAPEUTICS—Sixth Edition—A Textbook for Students and Practitioners of Medicine and its Allied Professions—Arthur Grollman, Ph.D., M.D., F.A.C.P., Professor and Chairman of the Department of Experimental Medicine, The Southwestern Medical School, The University of Texas; Attending Physician, Parkland Memorial Hospital; Consultant in Internal Medicine, Baylor University Hospital. With the collaboration of Evelyn Frances Grollman, A.B., M.D., Member of the House Staff of the Bellevue Division, Columbia University College of Physicians and Surgeons; Ensign (R), United States Public Health Service. Lea & Febiger, Philadelphia, 1965. 1181 pages, \$15.00.

PHYSIOLOGY OF THE EYE—Clinical Application—Fourth Edition—Francis Heed Adler, M.A., M.D., F.A.C.S., William F. Norris and George E. de Schweinitz, Emeritus Professor of Ophthalmology, University of Pennsylvania School of Medicine. The C. V. Mosby Company, 3207 Washington Boulevard, St. Louis, Missouri, 63103, 1965. 889 pages, 437 illustrations, 2 in color, \$18.75.

RESPONSE OF THE NERVOUS SYSTEM TO IONIZING RADIATION—Second International Symposium Held at the University of California, Los Angeles—Edited by Thomas J. Haley, Laboratory of Nuclear Medicine and Radiation Biology, University of California, Los Angeles, Calif., and Ray S. Snider, School of Medicine and Dentistry, University of Rochester, Rochester, N.Y. Little, Brown and Company, Boston, 1964. 749 pages, \$18.50.

SEXUAL HYGIENE AND PATHOLOGY—A Manual for the Physician and the Professions—Second Edition, fully revised and enlarged—John F. Oliven, M.D., Psychiatrist at Vanderbilt Clinic, Columbia-Presbyterian Medical Center, New York; former Senior Psychiatrist, Bellevue Hospital and Mental Hygiene Clinic; Instructor in Psychiatry, College of Physicians and Surgeons, Columbia University. J. B. Lippincott Company, Philadelphia, Pa., 1965. 621 pages, \$12.50.

STRUCTURE AND METABOLISM OF THE PANCREATIC ISLETS—Proceedings of an International Wenner-Gren Symposium held in Uppsala and Stockholm, August 1963—Edited by S. E. Brolin, B. Hellman and H. Knutson. A Pergamon Press Book, distributed by The Macmillan Company, New York, 1964. 528 pages, \$20.00.

VASCULAR ROENTGENOLOGY—Arteriography, Phlebography, Lymphography—Robert A. Scholinger, M.D., F.A.C.A., F.I.C.A., S.G.P., Diplomate, American Board of Surgery; Diplomate F.M.H. in Surgery, Switzerland; and Francis F. Ruzicka, Jr., M.D., F.A.C.R., Director, Department of Radiology, The St. Vincent's Hospital and Medical Center, New York; Clinical Professor of Radiology, New York University School of Medicine, New York. The Macmillan Company, New York, 1964. 747 pages, \$35.00.

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NEW BOOK

PATIENTS WHO TROUBLE YOU. By William A. Steiger, M.D., and A. Victor Honsen, Jr., M.D. 155 pages. 1964. Little, Brown. \$5.50. Here is an unusual book. It is an engaging, yet unconventional, approach to one of the most important subjects in medicine—the doctor-patient relationship.

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New Director for AMA Scientific Programs

A microbiologist and medical educator has joined the American Medical Association to direct the production of scientific programs for the AMA annual and clinical conventions.

He is Ira Singer, Ph.D., formerly professor of microbiology, acting chairman of the Department of Microbiology at Georgetown University Schools of Medicine and Dentistry, Washington, D.C.

Dr. Singer has the title of associate director of the Department of Postgraduate Programs for Scientific Programs. He will coordinate production of the scientific programs, and participate in other department activities.

The purpose of the scientific programs is: (1) to provide physicians who attend the annual and clinical conventions with new information to keep them abreast of developments in medicine and (2) to provide "refresher" discussions by authorities in the various specialties, for the physician interested in furthering his postgraduate education.

Dr. Singer, 41, took his Ph.D. from the University of Chicago in 1953. He has held professional appointments at the University of Chicago; Christ Hospital Institute of Medical Research, Cincinnati, Ohio; the Rockefeller Institute for Medical Research, New York City, and Georgetown University. His scientific publications are principally in the fields of malariology and trypanosomiasis.

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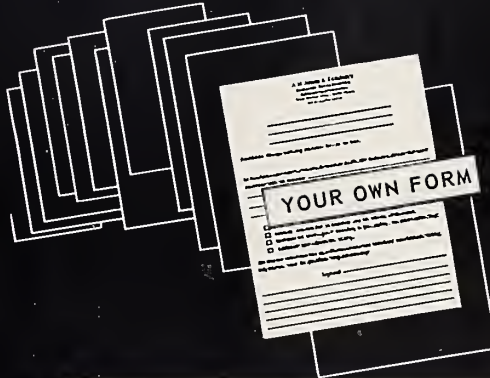
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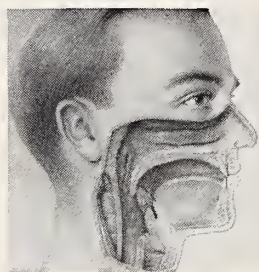
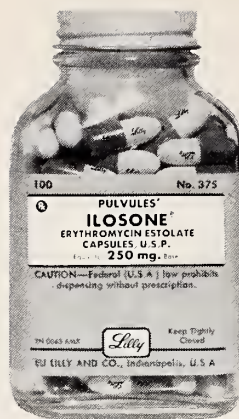
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What lies ahead for Medicine?

JAMES C. DOYLE, M.D., *Beverly Hills*

WHO COULD HAVE FORETOLD 30, 20, or 15 years ago what the changes in medical education, medical practice and medical organization, not to mention scientific and technological medical advances, would have wrought today? Who could have foreseen what myriad of discoveries the age of the atom would have created for the scientific professions to command in alleviating and curing illness, and extending the lives of millions of people in America and throughout the world? Who could have predicted, a few decades ago, that America would become a major world center of scientific achievement and the fount of medical miracles, or that its majestic successes would make it both a vanquisher of, and contributor to, some of the social problems of our era?

I could ask any number of other questions—but all of them would only serve to emphasize one point. Medicine's contributions to the preservation and prolongation of life: its phenomenal discoveries and applications, and its regular and unending breakthroughs to thwart disease and misery, have changed what Shakespeare in his day called "Life's uncertain voyage" to what we may more appropriately call life's more predictable passage.

Yet, while we may hazard some guesses as to when cures of one kind or another will occur, and while we may enjoy the anticipation of some future

discovery because we are aware of the search in our midst, we are still unable to predict precisely what yet unborn or just begun piece of research or new drug or molecular genetic rearrangement will burst upon the scene to defeat death or disability. Neither can we conceive of what acts of serendipity will brush aside curtains of darkness and enable the light of new discoveries to obliterate or to ameliorate diseases of the soma or the psyche for which no previously known cures existed.

What lie ahead, then, for medicine are the greatest hopes and expectations for the fulfillment of man's desire to lead a life free of disease.

As with the somatic diseases, those of the mind will gradually be engaged in stronger battle. The beginnings have been made; progress in the battle against mental disorders will, however, not be as long in the making as in combating physical disease, although it is evident that a much more intensified effort remains to be made to bring the products of such research to successful fruition.

Rates of hospital admissions for physical ailments will gradually decrease as methods for earlier detection and diagnosis are widely applied, and as the preventive aspects of medicine become utilized and made available to a greater degree to the public. Alternatives to hospital care, as exemplified by the movements to progressive patient care, nursing home care and homemakers and day care center services, will reflect the ease of transition to,

Presidential address, presented before the first meeting of the House of Delegates of the California Medical Association, March 27, 1965.

and application of, less costly—yet equally appropriate—facilities and services. The same trend will become evident in the treatment of mental illnesses, as day and night care centers, community outpatient health centers and home care facilities gradually displace institutionalized care for those who can make more rapid adjustments with aid of psychotropic drugs and other advanced methods of therapy. This shift from institutionalized to non-institutionalized care will be a dramatic one in the future; medicine will emerge as a truly potent social force in changing previously held cultural concepts about the mentally disturbed.

What we know as just the beginnings in the restoration and rehabilitation of the disabled—even though they represent remarkable achievements in the practice of medicine today—will take on new meaning and significance as medicine applies its full potential to the art and science of restoring the handicapped to maximum functional performance of body organs and systems.

The application of computer technology to the diagnostic techniques employed in medical practice will add immeasurably to the efficiency and productivity of the physician's time, hasten the therapeutic process and have considerable impact on the allocation of medical manpower. The wider application of transplants, laser beams and other discoveries still in their experimental stages will add yet other dimensions which will render obsolete many of the techniques employed today.

Maternal and child mortality will gradually be reduced, as economic and educational levels of the population increase, and as the public becomes acutely aware of the full range of services which the health professions have to offer. Health maintenance, in its fullest meaning, will be the keynote of medical care from the prenatal to the geriatric range. May heaven help us, however, if geriatric obstetrics ever becomes a reality, with the possible perfection of pills that will restore the birth-bearing cycle. For then medicine and all of society would face a challenge which neither it nor government edict would ever be likely to resolve!

What I designate as medicine's "golden age" will never, of course, be *fully* realized. The major threat to the physical well-being of people will be the increasing hazards induced by problems of environmental sanitation, water and air pollution, the insecticides and other man-made materials. Unless we all take to the air (and even then escape is questionable) the holocaust from motor vehicle deaths and accidents will outstrip anything our imagination can conceive. For every life we shall save through the skill of the health care team, we shall probably match with injuries resulting from

automobile accidents and the like. And when I referred to air pollution, I did not intend to specify smoke stacks or cigarette packs alone; I had in mind the ever-present dangers of fall-out from a dirty bomb, or even a so-called clean one, unleashed in some situation of fear or frenzy—unless sanity prevails.

The paradox of speaking about medicine's future is, of course, as I have just observed, that one cannot separate the profession's future and role in society from that of the society and culture of which it is part. Medicine's achievements, its successes and failures will to a large measure mirror the values, the myths, the realities, the basic desires and the attainments to which society itself aspires. The profession will respond accordingly, although it will continue to be praised or pilloried, depending upon the points of view expressed by different segments of society. But society's views will center primarily around the social and economic issues and its increasing expectations, rather than the scientific progress and achievements of the medical profession. Despite this, however, medicine will continue to expand its horizons of care and to improve upon its system of education and training, and work in closer harmony with the mass of society in improving its distribution and availability of medical care to the public.

Since we can only look at what lies ahead by examining the present and the past, I will venture to guess that medicine will have learned to respond more quickly to various social needs and demands by *anticipating* problem areas, rather than by *reacting* to them in the fashion of previous times. I believe that some of the misunderstandings and shortcomings of the past will have been corrected since medicine will blend its efforts with, and utilize more fully, the findings of the social and behavioral sciences. Medicine's historical allergic response to government medicine, or socialized medicine (whichever term one might prefer to use), and some of its experiences with this type of control or manifestations of it, will lead the profession to speak more fluently and frequently to the benefits and advantages of *social* medicine; to a greater understanding on the part of the public regarding the conditions under which a medical profession can best provide the broadest range of services at the most reasonable and predictable costs to all people, and to afford a realistic appraisal and appreciation by the public of the affirmative contributions which physicians make to society.

Medicine will address itself more forcefully to the needs of the lower income, less educated segments of the population, and thereby bring their level of medical care up to that of the higher income, better educated parts of the population. It

will have been able to do so because the emphasis of our economic system and its educational counterpart will have provided by that time the basis for access to good medical care, and because of the rigid implementation of the profession's concord that medical care will be available to all people regardless of their ability to pay for it. Geographic and cultural isolation will become a thing of the past as rural areas become wedded to metropolitan areas, as medical services and facilities become equally accessible to all, and as underprivileged areas of cities are razed and rebuilt into wholesome communities in which poverty and its adhesions are gradually obliterated.

You will note that, up to this point in my journey into the future, I have dealt primarily with some science-fiction elements of the kind of society which most of us would like to be able to prognosticate. If I have touched upon a couple of less palatable by-products, it is only because our road to progress and achievement is often strewn with less rewarding yields which progress itself engenders, and which future generations will have to find some way to surmount or eradicate. I am enough of a realist, however, to recognize that medicine also has its non-fiction complements. Some of these we face today, this very month, and in the days ahead. Some of them represent problems which are internal to the health professions; some of them represent problems and issues which are external to the medical profession but which impinge upon the physician's ability to practice medicine in the future.

Taking a more pragmatic approach, therefore, I should like to suggest that what lies ahead of medicine are two roads along which medicine has the choice of traveling. The one road which actually represents the alternatives of internal behavior, is identified by the kinds of choices we make in deciding how to improve and perfect our system of medical education; how to bind all physicians into a single, unified effort to provide the highest and most effective quality of medical care to the public; how to bring about greater understanding among all members of the health care team; how best to utilize and promote the efficiency of physicians and paramedical personnel; how best to organize and coordinate the delivery and distribution of health care service so that no one in need of it goes without it; how best to identify the goals of the profession with the desires and demands of the patients it serves; how best to make our system of voluntary health insurance an impregnable one, and how best to halt what appears to be evidence of increasing impersonalization in the rendering of medical care as greater specialization follows in the footsteps of medical knowledge.

The other road represents, actually, the decisions which external forces or, more precisely, public policy will determine if our internal path of choice is an improper, inadequate or untimely one. Medicine is now faced with just one such major example of external choice with regard to the issue of the health care of the aged. Whichever way the decision goes, it must be viewed as the greatest single challenge and opportunity to which the physicians of this country must respond by multiplying their internal efforts a thousandfold so that society itself will never again be torn by indecision, nor support political objectives which physicians view as being at cross-purposes with the goals that they and society have in common.

What lies ahead for medicine in terms of its scientific achievements can be described in the most optimistic and heartening terms. What lies ahead for medicine in terms of its social and economic relationships to the people it serves can only be conjectured upon, depending upon how well physicians respond to the changing problems and values of the society and the extent to which the expectations of the medical profession and the public coincide or accommodate themselves to each other. These expectations need not necessarily spell enduring conflict. In fact, the very nature and ideals of the medical profession militate against such a possibility. I therefore view the future with the same hope and optimism in this regard as well, for I am convinced that the physicians of America will meet the obligations and responsibilities they have to society and, when they have demonstrated this adequately and affirmatively to the public, will enjoy the support and encouragement which they fully deserve and merit for the decades which lie ahead.

As President, this year, of the California Medical Education and Research Foundation, a non-profit organization sponsored by the California Medical Association, I have been privileged to participate in a Study of the Role of Medicine in Society. This study, which has been in progress for two years, has involved a number of leaders of the medical profession of California as well as representatives of the social and behavioral sciences, labor, management and other community organizations. I will read the objectives of the study to indicate how medicine in California is attempting to determine what directions our future efforts should take:

- To study and to explore the nature of existing relationships between the medical profession and society;
- To examine the problems, issues and developments which are of concern to the medical profes-

sion and to the public in the rendering and receipt of medical care;

- To delineate the mutual obligations and responsibilities of the medical profession and society, and the communication of ideas and ideals between them;

- To inquire into the demands and needs for medical care among the public and its various segments;

- To determine the methods, techniques and opportunities through which the medical profession can best provide the highest quality of medical care to the people it serves;

- To reevaluate programs and policies in the light of medical advances and technological and social changes which affect medicine's relationships to the individual, the community and its subgroups and to society as a whole;

- To explore the findings of other disciplines, particularly those in the behavioral sciences, in order to ascertain how the products of other research can be utilized by the medical profession; and

- To determine how the amalgam of interests of the medical and social sciences and the public can coalesce to formulate contemporary approaches to, and future directions in, health care.

From what you have just heard, I am sure you realize the extent of our efforts to secure information which will give us the impressions various segments of the public have of the medical profession. We have been reviewing the literature which relates to our objectives, and we have gained a great deal of insight into how others view us, our services, and our relationships to the public. We have compiled a wide variety of assertions and allegations directed toward medicine, some of which may contain some apparent basis in fact, and others which appear to lack any justification. We have also received a number of recommendations and

suggestions from different persons and organizations which will be most helpful in our study.

From the information we have gathered, we have now prepared a progress report—the second one—which has been presented to the House of Delegates for its information. And out of this wealth of material we have translated our findings into recommendations for action. This, to me, is tangible evidence of medicine's willingness and ability to look at itself as objectively as it can, so that it can pave the way for a future in which it can be secure, possess the freedom it requires, fulfill its rightful role in society, and be accorded the recognition and privileges it needs so that the public *will* receive the services it requires, and so that the future can be planned for—today.

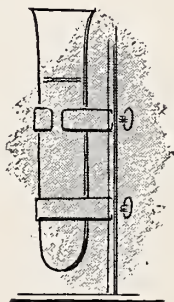
It is our hope that this continuing study will not only serve as a guide for physicians in California, but for physicians throughout the country, and also for those who will enter the profession in the future. This kind of self-appraisal will, I hope, enable us to take the correct path to the future so that, as stated in the objectives of our study, we can formulate contemporary approaches to, and future directions in, health care.

What lies ahead for medicine depends on what you, and I, and all our colleagues do today, to lay the foundations for a secure tomorrow on behalf of the betterment of health of the American people.

9730 Wilshire Boulevard, Beverly Hills, California 90212.

I should like to express my deep appreciation to Dr. Samuel R. Sherman who served as chairman of and inspiration and catalyst to the Committee to Study the Role of Medicine in Society; to Dr. Malcolm S. M. Watts for his remarkable contribution to the study; to the members of the committee whose diligence and dedication to the task made the report possible, and to the research staff for its invaluable assistance.

—J.C.D.



Aseptic Meningitis associated with ECHO Virus Type 9 Infection

With Special Reference to Variability by Sex and Incidence of Paralytic Sequelae

BERNARD PORTNOY, M.D.
BERNARD HANES, PH.D.
NATHANIEL F. PIERCE, M.D.

JOHN M. LEEDOM, M.D.
E. EUGENE KUNZMAN, M.D.
PAUL F. WEHRLE, M.D.

Los Angeles

■ *The clinical and clinical laboratory findings in a group of 104 patients with aseptic meningitis associated with ECHO-9 infection were widely variable.*

A male to female case ratio of 3.7:1 was noted, and the mean age of the female group was significantly greater than that of the male group. The median of cerebrospinal fluid leukocyte counts was significantly higher in the male than in the female patients. Clinical manifestations of the disease were similar to those noted in other reports. Residual paralysis was rare and mild.

Further study of the ecology of aseptic meningitis seems indicated for elucidation of the factors governing variability of the disease by sex.

IN 1954, ECHO-6 became the first ECHO virus unequivocally associated with aseptic meningitis.^{2,5} During the following year, ECHO-9 was etiologically implicated in the same syndrome.^{1,10} Since then, numerous reports describing the central nervous system symptoms, skin manifestations and

epidemiologic features of ECHO-9 have appeared in the literature, including reports by Nihoul,¹³ Sabin,¹⁵ and Solomon¹⁶ and their coworkers which gave detailed descriptions of epidemic outbreaks of ECHO-9 disease.

This report describes and analyzes the syndrome of aseptic meningitis as one of the clinical expressions of ECHO-9 infection as observed in 104 patients in Los Angeles County. The high male to female ratio often observed in studies of aseptic meningitis is analyzed and discussed in detail, as is the problem of residual muscle weakness associated with ECHO-9 infection.

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Plan of Study

Selection of Patients

All the patients included in this report had been referred to the Communicable Disease Service of the Los Angeles County General Hospital for diagnosis and treatment. Patients are accepted from the entire County, and all age and socioeconomic groups are represented.

All of the patients included in this report had signs of meningeal irritation (headache, stiff neck and/or stiff back, positive Kernig's or Brudzinski's signs) and cerebrospinal fluid pleocytosis greater than five cells per cubic millimeter. In none of them was there coma, disorientation, convulsions, abnormal or pathological reflexes or obvious flaccid paralysis. ECHO-9 infection was documented in each patient in one or more of the following ways: (1) Isolation of virus from the cerebrospinal fluid with or without a four-fold or greater rise in neutralizing antibody titer in the serum; (2) A four-fold or greater rise in serum neutralizing antibody titer with or without isolation of the virus from pharyngeal secretions or fecal specimens.

Clinical Studies

Each patient had a routine hospital work-up including physical examination and appropriate clinical laboratory studies. In most patients a competent physical therapist did a detailed grading of muscle function at the time of discharge and again 60 to 120 days later.

Virus Laboratory Procedures

Specimens for viral studies were obtained on admission and stored at -20°C for periods varying from 24 hours to one year until studied. At least one isolation specimen (cerebrospinal fluid, stool, rectal swab or throat swab) was available from every patient, and a minimum of three specimens were cultured from 98 of the 104 patients. All isolation attempts were made in monkey kidney tissue culture,* and all isolations were made on the first passage. Viral isolates were typed by tube neutralization tests utilizing hyperimmune rabbit sera.†

Infection with ECHO-9 was confirmed by a four-fold rise in antibody titer by the tube neutralization test. Whenever possible, a strain isolated from the patient was used because the prototype ECHO-9 virus seemed to vary antigenically from many of the strains isolated from this series of patients.

*Obtained from Microbiological Associates, Inc., Bethesda, Maryland, and The Tissue Culture Laboratory, Oakland, California.

†Obtained from Microbiological Associates, Inc., Bethesda, Maryland.

Statistical Methods

Measures of central tendency and dispersion were calculated according to standard methods.^{3a} Student's *t* test was employed to test the significance of differences between two means in Tables 1 and 5.^{3b} The medians in Tables 3, 4 and 6 were compared by the non-parametric median test for two samples utilizing χ^2 , based upon a four-fold contingency table, and corrected for continuity.¹²

Epidemiological Observations

Temporal and Etiologic Description

Patients with ECHO-9 aseptic meningitis were observed during the fall of 1961 (17 cases) and during every month of 1962 (87 cases) except January, February and March. The peak incidence of the disease occurred during August and September, 1962. No geographic localization of ECHO-9 cases in the County was detected.

During 1962, the only complete year for which both virus laboratory and reporting data are available, 532 cases of aseptic meningitis were reported in Los Angeles County; 395 (74 per cent) of the patients were admitted to Los Angeles County General Hospital and all were studied by our laboratory. ECHO-9 infection was well-documented in 87 of the cases detected in 1962. These 87 patients constituted 16 per cent of the total number with aseptic meningitis reported in the County and 22 per cent of those admitted. An additional 28 patients with onset of illness in 1962 were not included in the present report because isolation of ECHO-9 from throat swabs, rectal swabs or stools was not accompanied by significant rises in neutralizing antibody titers.

Documentation of ECHO-9 infection was accompanied by virus isolation from one or more sites in 100 of the 104 patients in the study group. The virus was recovered from the cerebrospinal fluid in 57 instances. Fifty-four of these 57 patients had adequate paired serum specimens for neutralization tests, and in 13 of these 54 a four-fold or greater rise in neutralizing antibody titer did not develop. ECHO-9 virus was isolated from pharyngeal secretions and/or stool with an accompanying four-fold or greater rise in neutralizing antibody titer in 43 of the remaining 47 patients. Four patients with four-fold or greater titer rises without isolates were included.

As ECHO-9 serologic study had not been completed at the time of this report in those cases of aseptic meningitis without isolates, the final total of proven ECHO-9 infections in 1962 will undoubtedly be higher. It should be emphasized that the number of cases of aseptic meningitis reported in Los An-

geles County during the study period was not unusual, and in this sense, at least, ECHO-9 disease was not epidemic. Due to a lack of virologic data in earlier years, we are unable to state with certainty that ECHO-9 caused an unusually high proportion of the cases of aseptic meningitis in 1961-62; however, in 1963 a much smaller proportion of the cases of aseptic meningitis observed at Los Angeles County General Hospital was caused by ECHO-9.

During the period of this study, the following agents were also associated with aseptic meningitis: Mumps; ECHO viruses types 2, 5, 6, 14, 15, and 21; Group A, Coxsackie type 9; Group B, Coxsackie types 2 and 5; poliovirus type 1; and *Herpesvirus hominis*.

Characteristics of the Study Group

The age and sex distribution of the patients studied is shown in Table 1. Of the 104 patients, 82 (79 per cent) were males and 22 (21 per cent) were females. The ratio of males to females was highest between ages 0-4, approaching unity after age 20. The male age range was 0.6 to 37 years and the female range 2 to 54 years, while the mean age was 19.1 years for females and 12.8 years for males. From these data (Table 1), it would appear that the average age of the females was significantly greater ($p < .05$) than that of the males.

Negroes constituted 22 per cent of the study group, while the remainder was Caucasian. No significant differences were noted between racial groups in any of the disease manifestations studied.

Seven families with multiple cases were studied. Six families with two cases each and one family with four were seen, a total of 16 cases. With one exception, the secondary cases in families occurred within ten days of the primary case; in the exception the interval was two months.

Clinical Observations

Taking the day of the first symptoms as the first day of disease, the mean duration of disease at

the time of admission was 3.9 days with a range of 1 to 11 days. The typical onset was abrupt and almost always accompanied by fever. Headache was an almost invariable complaint except by patients under four years of age. Nuchal rigidity was noted in 30 cases (77 per cent) either by the patient's family physician or the admitting resident. In the remaining 24 cases, lumbar puncture was prompted by an unexplained febrile illness often coupled with a history of family or other close contact with a case of "meningitis."

The average duration of disease, measured from date of onset to date of discharge, was 8.9 days with a range of 4 to 21 days. These two statistics of length of illness also did not vary significantly between the sexes.

Fever

A biphasic illness was noted in 11 (11 per cent) of the patients. That is, they had an initial acute, non-specific, febrile illness followed by a 24 to 72-hour period of well-being before the onset of the symptoms prompting admission to the hospital. As most of the biphasic courses were recorded in the younger patients, it was difficult to be certain whether the illnesses were truly biphasic or were two separate illnesses.

The mean temperature (rectal) on admission to the hospital was 101.3°F with a range of 98.2 to 104.4°F. Twenty-three patients were afebrile (less than 100°F) on admission, but in 18 of these temperature in excess of 100°F developed later. Five gave no history of fever before admission and remained afebrile throughout the hospital course. The mean duration of fever after hospitalization was 3.8 days with a range of 0 to 8 days. The duration of fever did not vary significantly between the two sexes.

Rash

An exanthem was observed in 13 (12.5 per cent) of the 104 patients. These 13 patients ranged in age from seven months to 37 years. However, 11 of the 13 were less than 15 years of age, and eight of the 11 were five years of age or younger. Two of the 13 were females, a ratio not differing materially from the ratio of females to males in the total group. The rash varied in appearance from macular to maculopapular to petechial to combinations of the three characteristics.

A petechial rash without associated macules was present in three patients, aged 1, 2 and 3 years. The eruption was limited to the face and neck in one case and extended down over the thoraces in the other two. The latter two cases simulated meningococcal disease and received antibiotic treatment initially. In a fourth patient, the exanthem

TABLE 1.—Age and Sex Distribution

Age in Years	Sex Distribution		Total
	Males	Females	
0-4	12	1	13
5-9	24	5	29
10-14	23	5	28
15-19	7	0	7
20-29	11	8	19
30+	5	3	8
Total	82	22	104
Mean age (years)	12.82	19.14	13.7
Standard deviation	9.28	13.01	10.23
Range (years)	0.6-37	2-54	0.6-54

was diagnosed initially as roseola. In another the initial impression was rubella because of the presence of posterior cervical adenopathy; however, the rash was limited to the buttocks and lower abdomen. Among the other eight patients with rash, the eruption was generalized in three cases, involved the chest, face and neck in three, was limited to the extremities in one, and limited to the chest in another.

Conjunctivitis and Photophobia

Only one patient, a 31-year-old man, manifested objective conjunctivitis. The condition lasted two days and was mild, bilateral, non-purulent and accompanied by photophobia.

Six of the 62 patients (ten per cent) who were ten years old or older, complained of photophobia accompanied by headache. The absence of these complaints among the younger children may reflect communication problems rather than true absence of the symptoms.

Respiratory Symptoms

Only four patients, aged 5, 15, 37 and 54 years, complained of sore throat before admission and none of these had objective evidence of pharyngitis when first examined. In eight additional patients there was objective evidence of non-exudative pharyngitis or pharyngotonsillitis. These eight ranged in age from 2 to 40 years with only two under the age of six. Throat cultures for beta hemolytic streptococci were negative in all eight cases.

Only three patients had lower respiratory tract symptoms. One, aged ten years, had cough as well as upper respiratory tract symptoms. A second, aged ten years, had bronchitis. The third patient in this group complained of cough and sore throat.

Unilateral catarrhal otitis media was present in one infant, and prodromal symptoms of an upper respiratory illness with cough were seen in two other children.

Gastrointestinal Symptoms

Forty-eight (46 per cent) of the patients reported vomiting before admission. Although nausea and vomiting were the most common complaints referable to the gastrointestinal tract, a few patients complained of abdominal pain.

Genito-urinary

One patient, a 14-year-old white male, experienced urinary retention of one day's duration. He did not require catheterization. None of the other patients had symptoms or abnormal laboratory findings referable to the urinary tract.

Neurological Symptoms

Three patients, aged 14, 15 and 45 years, complained of "dizziness." This symptom was of short duration and resolved completely in all three. One patient, a 21-year-old white woman, complained of blurred vision and headache. These symptoms were also of short duration and resolved spontaneously.

Adenopathy

Lymphadenopathy was detected in only two patients. The illness in one of these patients was diagnosed initially as rubella. The other patient was a 3-year-old white boy with cervical and inguinal adenopathy. ECHO-9 virus was isolated from a specimen of cerebrospinal fluid obtained on admission. After a stormy febrile course, the aseptic meningitis resolved, but the lymphadenopathy had only partially subsided at the time of discharge.

Muscle Function Evaluations

Detailed muscle function evaluations were performed on 94 (90 per cent) of the patients just before discharge, and 62 (60 per cent) were re-evaluated 60 or more days later. The results of these evaluations, with each patient tabulated by the rating of his weakest muscle group, are recorded in Table 2.

Eighty-eight (85 per cent) of the patients received grades of "normal" (N) or "good" (G) on primary evaluation. All but one of the patients with G scores had apparent weakness limited to the flexors of the neck or trunk or both. In addition to trunk and neck flexor weakness, one 15-year-old boy received G scores for all the muscle groups of his left shoulder and elbow on primary grading, and then received N scores on reexamination 62 days later.

TABLE 2.—Muscle Function Evaluations
(Score of Weakest Muscle Group)

	Immediately Before Discharge		60+ Days After Discharge	
	No.	Per Cent	No.	Per Cent
Normal	54	51	38	37
Good	34	33	21	20
Fair	1	1	2	2
Not done	10	10	42	40
Not valid*	5	5	1	1
Total	104	100	104	100

* Patients too young for reliable grading.

Normal: Complete range of motion against gravity with full resistance.

Good: Complete range of motion against gravity with some resistance.

Fair: Complete range of motion against gravity.

Poor: Complete range of motion with gravity eliminated.

Trace: Evidence of slight contractility. No joint motion.

Zero: No evidence of contractility.

The one "fair" (F) score noted on primary grading resulted from weak trunk flexors, but this patient was not available for follow-up testing.

Scores of N or G were recorded in 59 instances 60 or more days after discharge. Forty-two patients (40 per cent) did not appear for this evaluation, and muscle function of one infant patient could not be adequately evaluated because of lack of cooperation. All of the ten patients who received G scores on both examinations, and six of the eight whose scores went from N to G, had weakness limited to the neck flexors, the trunk flexors or both. Two other patients with initial N scores had G ratings on reevaluation. One, a 12-year-old boy, received a G score on his right wrist extensors 66 days after discharge, and the other, a 13-year-old boy, had bilateral weakness of the hip abductors.

Two patients received F scores on long-term muscle function evaluation. A 6-year-old girl had an F score on the function of the internal and external rotators of her right shoulder 69 days after the onset of illness, but unfortunately an earlier muscle function evaluation was not available for this patient. The second patient, a 21-year-old woman, had a completely normal rating on discharge, but stiffness and limitation of motion of trunk and hip flexors four months later resulted in an F score.

One 21-year-old woman, who had an N score at the time of discharge, complained of left lower extremity weakness and easy fatigability 84 days after the onset of illness, but no weak muscle groups were detected upon examination.

None of the patients had pronounced disability on any muscle function examination, and none had detectable muscular atrophy. Indeed most of the G ratings and one of the three F scores were due to apparent weakness of neck and trunk flexors which might have been caused by residual meningeal irritation. This leaves one patient in 89 who had definite muscular weakness on primary grading in muscle groups other than neck or trunk flexors, and four of 61 (6 per cent) with deficits in muscle groups other than neck or trunk flexors on evaluation 60 or more days after discharge. If only F scores for muscle groups other than trunk and neck flexors are considered, none of 59 had significant weakness on primary grading, and two of 61 (three per cent) 60 or more days later.

TABLE 3.—Leukocyte Counts in Cerebrospinal Fluid in 104 Patients, 82 Male, 22 Female

	Leukocytes per cu mm		
	Males	Females	Total
Mean	618	322	553
Median	450	160	305
Range	9 to 2300	23 to 1600	9 to 2300

Clinical Laboratory Data

The specimens yielding the clinical laboratory data to be presented in this section were taken at or a few hours after admission. Only data from the same specimen (for cerebrospinal fluid) or those taken at the same time (blood) were tabulated. Measurements of central tendency and dispersion of cerebrospinal fluid cell counts are presented in Table 3. As the cell counts did not approximate a normal distribution, medians were utilized in the statistical comparisons. The median cell count of the male group was significantly greater ($p < .05$) than that of the female group. As the mean duration of disease at the time the spinal fluid specimens were obtained was 4.15 days for males and 3.73 for females, an insignificant difference, this difference in cell counts could not be attributed to variation in the time of sampling.

Table 4 shows spinal fluid cell differential counts. All the cells counted were mononuclear or polymorphonuclear. The wide range of proportions of mononuclear cells should be noted. Here again, since the distribution of the differential counts did not approximate normal, medians were compared statistically. There was no significant difference in the median per cent mononuclears between the male and female groups.

Cerebrospinal fluid protein levels may be seen in Table 5. Like the cell counts and cell type differentials, the values had wide ranges. As the protein levels approximated normal distributions, mean cerebrospinal fluid protein levels were compared for the male and female groups and did not vary significantly by sex.

Leukocyte counts in specimens of peripheral blood varied widely (Table 6) and were not nor-

TABLE 4.—Cerebrospinal Fluid Cell Differential Counts in 103 Patients,* 81 Male, 22 Female

	Per Cent Mononuclear Cells		
	Male	Female	Total
Mean	79	88	81.1
Standard deviation	22.2	15.9	21.1
Median	90	91	90
Range	16 to 100	41 to 100	16 to 100

*Differential not done on one patient.

TABLE 5.—Cerebrospinal Fluid Protein Levels (mg per 100 ml) in 93 Patients,† 73 Male, 20 Female

	Protein mg per 100 ml		
	Male	Female	Total
Mean	51.7	55.8	52.5
Standard deviation..	22.8	27.0	23.4
Range	14 to 109	20 to 122	14 to 122

†Not performed on 11 specimens.

TABLE 6.—*Leukocyte Counts in Peripheral Blood in 99 Patients,* 79 Male, 20 Female*

	<i>Leukocytes per cu mm</i>		
	<i>Male</i>	<i>Female</i>	<i>Total</i>
Mean	9,290	9,510	9,334
Median	8,900	8,700	8,900
Range	3,500 to 25,000	4,000 to 15,000	3,500 to 25,000

*Count not performed on day of cerebrospinal fluid specimen in five instances.

mally distributed. Median counts did not vary significantly between the two sexes. The percentage of neutrophils ranged from 25 to 94 per cent, but most differential counts were within normal limits. The clinical laboratory findings in relation to the ability to culture ECHO-9 from cerebrospinal fluid have been described in detail in another publication.¹⁴

Discussion

In spite of the increased depth of study made possible by modern virologic methods, there is no good explanation for the male to female ratio of 3.7:1 observed in this study, and the equally high ratios noted in other studies of aseptic meningitis.^{4,6,15,16} As the preponderance of males was more pronounced in the lower age ranges, the male to female case ratio must be interpreted as a variable dependent on age. Unfortunately, age-matched comparisons by sex, of the disease attributes that were investigated in this study, could not be done because of the small numbers of females in each age group.

The severity of illness as measured by duration of fever and total length of illness did not vary significantly by sex. Males were not admitted significantly earlier in the course of their illnesses. In short, the male group was not "sicker" than the female group. Of course, the study group consisted only of patients with clinically evident ECHO-9 aseptic meningitis, and ECHO-9 infection may be subclinical or result in non-specific minor illness: also, good estimates of age-specific and sex-specific attack rates for subclinical or minor infection in the community are not available. Assuming that exposure to infection were equal for both sexes, the preponderance of males with ECHO-9 aseptic meningitis could be explained either on the basis of a higher rate of absolute resistance to infection in females or a greater rate of relative resistance resulting in more subclinical infections or minor illnesses. In the male group, the higher median white cell count in cerebrospinal fluid is suggestive of real differences by sex in the response to clinically manifest ECHO-9 aseptic meningitis. More complete ecological studies are needed to

clarify the precise mechanisms of these sex-dependent differences.

Except for the greater frequency of rash in the present study group, the clinical syndromes observed were indistinguishable from those noted in the large series of cases of aseptic meningitis caused by various enteroviruses reported by Meyer and coworkers¹¹ and Lepow and coworkers.⁷ Although ECHO-9 is the enterovirus most commonly associated with rash, it is not unique in this respect. Rash has been reported in association with aseptic meningitis due to ECHO-6,⁴ Group A, type 9, Coxsackie^{7,8} and others.¹⁷

There were few outstanding differences among the major clinical findings in the present study group and similar groups of patients with ECHO-9 aseptic meningitis reported by Sabin¹⁵ and Solomon¹⁶ and their coworkers. The proportion of patients manifesting abdominal pain, photophobia, headache, stiff neck and fever was similar in all three studies. Vomiting occurred in about 50 per cent of the patients in the present study group and in 77 per cent of the patients reported by Solomon and coworkers.¹⁶ The higher average age in the present study group probably accounts for this discrepancy. Sabin and coworkers reported vomiting in 50 per cent of their patients, with a higher incidence in the younger age group. The 13 per cent incidence of rash noted in the present study is not significantly different from the 20 per cent incidence reported by Sabin¹⁵ but it differed significantly ($p < .05$) from the 28 per cent noted by Solomon.¹⁶ The 11 per cent rate of biphasic illness observed differed significantly from the 25 per cent rate reported by Sabin¹⁵ ($p < .05$), but was not significantly different from the 17 per cent reported by Solomon.¹⁶

Respiratory symptoms and signs were infrequent in the present series. Pharyngitis was an objective finding in only 7.7 per cent of the patients. Sabin and coworkers¹⁵ noted this finding in 55 to 82 per cent of the patients they observed, with a higher incidence in the younger age group, while Solomon and coworkers¹⁶ noted objective pharyngitis in 39 per cent of patients. Again the discrepancy may have been a function of the younger average age of the patients in the other two studies. Symptoms of lower respiratory tract disease were uncommon (4 per cent) in the patients in our series, while Solomon and coworkers¹⁶ noted cough in 16 per cent. As symptoms referable to irritation of the respiratory tract may have other cause than microbial infection, these differences may be fortuitous. However, the ECHO group has been definitely associated with respiratory tract disease, so respiratory tract symptoms due to ECHO-9 would not be unexpected.

The low frequency of residual weakness observed in the present series is similar to the experience of other investigators, but it has been variable in our experience.¹⁸ Although variations in the skill and patience of the examiner are probably important, particularly in young children, evaluation of muscle function is a comparatively well-standardized art.⁹ Differences in the rates of F or lower muscle function scores in different series of patients with aseptic meningitis due to ECHO-9 or other agents are almost certainly real, and probably reflect intratypic strain variations in neuropathogenicity.

The extreme variation in leukocyte counts and cell differentials in peripheral blood noted in this study has been observed previously^{15,16} and is not peculiar to aseptic meningitis caused by ECHO-9. Karzon and coworkers⁴ reported counts ranging from "less than 5,000 to more than 17,000 per cubic mm" in the same syndrome due to ECHO-6. It is interesting to note that polymorphonuclear leukocytes were the predominant cells in the peripheral blood, while mononuclear cells predominated in the cerebrospinal fluid. These data merely emphasize the variability of individual cases, and the fact that classical descriptions of leukocyte counts (in peripheral blood and cerebrospinal fluid) in viral infections are based on many cases caused by different agents and may need to be more specific.

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Industrial Pleuropulmonary Disorders: Radiological Considerations

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■ *Industrial pleuropulmonary disorders may result from exposure of the human respiratory tract to diverse types of dusts and fumes, visible and invisible, benign and toxic, organic and inorganic.*

Meticulous radiological examination, combined with history and physical examination, appropriate laboratory tests, and the exclusion of other disorders which could produce similar changes, is essential for correct diagnosis.

Criteria for the radiological diagnosis of pulmonary fibrosis, of generalized emphysema, and of cor pulmonale are outlined.

The commoner types of pneumoconiosis are discussed in some detail, and the possible relationship of various inhaled noxa to primary bronchial carcinoma is considered.

MODERN LIFE, especially conurban, exposes the human respiratory tract to a wide variety of dusts and fumes, visible and invisible, benign and toxic, organic and inorganic.^{13,14} It would appear that:

a. Most visible dusts are less harmful than the invisible (for example cement dust against finely powdered silica):

b. Pulmonary changes that are present or that develop in exposed persons may be due not to dust disease but to coincidental disease such as sarcoido-

sis, cardiac disorder or other condition;

c. Individual response or susceptibility to noxious dusts varies widely (in only a minority of most groups of exposed persons does macroscopic evidence of disease develop).

In this review we shall consider chiefly the disorders due to inorganic dusts—"the pulmonary reactions to dust lodging within the lungs without implication as to the character, severity or the effect on function." The radiologic examination seldom permits reliable conclusions as to function.

The diagnosis of industrial pleuropulmonary dis-

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orders is often complex. It is based on (1) thorough radiological examination, (2) consideration of the history and physical examination, (3) suitable laboratory tests and (4) exclusion of other disorders which could produce identical roentgen findings. Too often a diagnosis of "fibrosis" is made from a single posterior-anterior (PA) film alone. Obviously this may lead to incorrect treatment, unwarranted claims for compensation, and, worse, unemployability. It then may require several "negative" x-ray reports and other tests to undo the false radiological diagnosis of pulmonary fibrosis in an eligible employee.^{5,6,7}

Examination

Radiological. The basic examination is a set of PA stereo and lateral teleroentgenograms made in inspiration, and a PA film in expiration. Stereoscopy is regarded by some radiologists as old-fashioned, but the studies by Berkson, Good and colleagues give statistical evidence of its value. For the detection of fine pulmonary nodulation it cannot be surpassed. Fluoroscopic examination is of use, especially when doubt exists as to the adequacy of the expiration film. It permits validation of decreased diaphragm motion (while sniffing or coughing) plus some degree of evaluation of apparent hilar densities, cardiac chamber enlargement and so forth. In selected cases, oblique (15 degree) PA films, lordotic views, heavy density views and tomograms may be of critical importance. The films should be studied in adequately shielded illuminators; overpenetrated films should be viewed with bright light; dual reading is sometimes invaluable.

Occupational history. Gardner taught us several decades ago the necessity of taking a complete industrial history. Without this, periods of significant exposure may be forgotten or overlooked, and periods of ostensibly important exposure unduly valued. An interested physician should compile a sequential record of the patient's employment by date, nature and location from the time of his first work. In hospital practice this has been in my experience one of the more overlooked steps in the examination of patients suspected of industrial pulmonary disease.

Laboratory and other tests. Space does not permit full consideration of these aspects. Sputum quantity should be estimated in patients with chronic bronchitis. Microscopic studies for acid-fast bacilli, fibers, lipids, tumor cells and other noxa may be indicated. Exclusion of primary tumor in other sites may occasionally be required (when lymphangitic or miliary metastatic disease must be excluded). Pulmonary function tests may be helpful.

Exclusion of other entities. The exclusion of other disorders causing pulmonary linear or nodular opacities, with or without pleural thickening or calcification may be extremely difficult, even after lung or pleural biopsy. Comparison with previous films, conference with physicians experienced in the field of industrial disease and serial observation at intervals of several months may be necessary.

Specific Types of Occupational Disease

Coalminers' Pneumoconiosis

Coalminers' pneumoconiosis is regarded, at least in England and Wales, as a specific disease and not merely a variant of silicosis.^{2,19} Only a minority of exposed workers tend to manifest the condition. Its pathological characteristics are believed by Cochran and coworkers² to be distinct from those of silicosis; its radiological appearance is somewhat different; but its clinical manifestations are similar. When silica complicates the exposure, both diseases may of course be present. It is most prevalent in South Wales, especially in the anthracite mines there.

Pathology. The basic lesion in coalminers' pneumoconiosis is said to consist of chronic inflammatory reaction to particles of coal that have collected around the small bronchioles. Precisely how they arrive at these loci is a matter of debate (see Gross, in Lanza).¹⁶ Permanent distention of the respiratory bronchioles and alveolar ducts then leads to focal emphysema. "Hypertrophic vesicular" emphysema is said to develop if there is severe concomitant silicosis; "centrilobular" emphysema if there is chronic bronchitis. The smaller pulmonary vessels tend to become compressed or occluded, with ultimate pulmonary hypertension and right heart failure. Gough showed that the pathologic changes are best studied by full lung sections rather than by small blocks of tissue.^{9,10}

In some cases areas of atelectasis or "detelectasis" and secondary infection develop. This may lead to segmental or lobar densities referred to as "progressive massive fibrosis." While tuberculous organisms may be recovered from such areas at autopsy, they are seldom found (in the absence of complicating silicosis) *in vivo*. Other infective organisms may be at fault. Areas of progressive massive fibrosis may bring about local necrosis, with excavation and discharge of the black contents into the sputum (melanoptysis). This may occur years after the coalminer has left his occupation, and lead to unwarranted diagnosis of cavitating carcinoma or cavitary tuberculosis. Tuberculosis is apparently not a serious problem in coalminers exposed to dust with a low silica content.

Clinical manifestations. Diffuse pulmonary nodulation resulting from "uncomplicated" or simple coal pneumoconiosis is usually clinically silent. However, when accompanied by severe fibrosis or emphysema, cor pulmonale and failure may develop. The stage of the disease tends to be reflected by the roentgen findings—and the determination of stage is aided by standard films for comparison. Some persons with fairly pronounced "simple" pneumoconiosis (radiologically) may remain asymptomatic for years; others, especially those with chronic bronchitis, are apt to have symptoms.

The proportion of miners in Great Britain and the United States in whom radiologic evidence of this disease develops is partly disclosed by this table from Brown (in Lanza).¹⁶

Per Cent of Coalminers with Nodulation or Pulmonary Fibrosis

<i>Length of Exposure</i>	<i>South Wales (1938)</i>	<i>USA (1941)</i>
BITUMINOUS COALMINERS		
Under 10 years	0	0
Over 20 years	3	3
ANTHRACITE COALMINERS		
Under 10 years	4	2
Over 20 years	29	23

Radiologic Findings. These may be divided into two main groups: Nodular opacities alone, and nodular opacities with emphysema and/or massive shadows. In either group the observable changes may be enhanced or complicated by infection, pulmonary hyperemia of cardiac origin and other disorders.

With continued exposure to coal dust, the first group tends to progress to the second, but progression diminishes or ceases on removal from exposure. By contrast, in the case of silicosis and berylliosis, progression may occur even after removal from exposure.

Based partly on the International Labor Organization classification and partly on the British Pneumoconiosis Research Unit classification, the following staging is suggested:

I. Pneumoconiosis with discrete opacities (simple pneumoconiosis).

1. *Minimal.* A small number of opacities, 0.5 to 3 mm in diameter, are present in at least two anterior rib spaces, extending not over more than about the medial half of each lung.

2. *Moderate.* More numerous opacities, 0.5 to 3 mm in diameter, are distributed over more than the medial half of each lung. The vascular markings are not obscured.

3. *Marked.* Very numerous opacities, 0.5 to 5 mm in diameter, are present throughout the major portions of both lungs. Vascular markings are partly or completely obscured.

In cases in which the distribution of the opacities varies from one area to another, the stage is determined by the most advanced disease present in at least one-half of one lung field.

The opacities themselves may be subdivided into pinhead sized (p), nodular (n) or mixed (m).

II. Pneumoconiosis with coalescent shadows (complicated pneumoconiosis).

These lesions are superimposed upon those of simple pneumoconiosis. For coding purposes, they can be recorded by one of the above numerals followed by one of the following initials:

Stage A. Coalescent shadows. One or more areas of opacity measuring over 1 cm in diameter, most commonly in the upper lung fields, especially on the right.

Stage B. Massive shadows, moderate. Coalescent opacities are larger and extend over less than the equivalent of 3 anterior rib spaces on one side.

Stage C. Massive shadows, marked. Coalescent opacities extend over the equivalent of 3 or more anterior rib spaces.

Stage D. Massive shadows with pulmonary distortion. The shadows are accompanied by irregular scarring, emphysema or pleuropulmonary changes. The mediastinal structures or diaphragm may be distorted.

Differential radiological diagnosis. This may be difficult especially in the earlier stages of simple pneumoconiosis.

1. Prominent pulmonary markings of nonpathologic nature. Technical errors such as the use of an unduly large focal spot; cassettes with poor screen contact; underexposure; and motion may lead to misleading appearances and over-reading. Chest films of muscular persons are also occasionally interpreted as showing "pulmonary fibrosis" or "pulmonary nodulation."

2. Slight passive congestion or edema of the lungs of cardiac or renal origin may be mistaken for nodulation.

3. Sarcoidosis. This pleomorphic disorder is a prolific source of confusion. Serial observation, skin tests, node or lung biopsy and other procedures may be required. However, histologic diagnosis *per se* is not decisive.

4. Miscellaneous infections (disseminated histoplasmosis, tuberculosis, coccidioidomycosis, etc.).

5. Primary diffuse pulmonary neoplasm (bronchiolar carcinoma).

6. Metastatic neoplasm in lungs (lymphangitic or miliary carcinoma).

7. Rare lesions: eosinophilic granuloma, polycythemia, collagen disease, hemosiderosis, alveolar proteinosis, microlithiasis, histiocytosis X, armillifer infestation, etc.

8. Occupational disease of nondisabling type (siderosis, baritosis, etc.).

This list is good evidence for the fact that the radiological diagnosis of industrial disease should not be made without thorough study, consideration of the history and physical findings and, if necessary, consultation.

The following paragraphs outline the criteria which we use for the radiological diagnosis of fibrosis, emphysema and *cor pulmonale*.

a. Criteria for the x-ray diagnosis of *generalized pulmonary fibrosis*.

1. Increased peripheral markings, preferably with nodulation.
2. Decreased diaphragm excursion.
3. Pleural "thickening" (especially in asbestosis).
4. Serial observation to exclude nonfibrotic entities, including edema, inflammatory (especially sarcoid), neoplasm (primary or metastatic), collagen disease, proteinosis, microlithiasis, histiocytosis X, etc.

b. Criteria for the x-ray diagnosis of *generalized obstructive emphysema*.

1. Increased radiolucency (local or generalized).
2. Narrowing or paucity of peripheral pulmonary arteries, often with widened hilar arteries.
3. Bullae.

(Only severe grades tend to be radiologically detectable. Extensive emphysema may be present with negative films. Bullae may occur in "normal lungs." Right heart enlargement in chronic bronchitis.)

c. Criteria for the x-ray diagnosis of *cor pulmonale*.

1. Enlarged pulmonary arteries.
2. Enlarged right ventricle (diagnosis difficult).
3. No enlargement of left auricle or ventricle.
4. Diaphragm often low; decreased motion.
5. Cardiovascular silhouette "small" in proportion to the sometimes "enlarged" lungs.

Silicosis

Pathology. Silicosis is a nodular pulmonary fibrosis caused by the presence within lung tissue of abnormally large numbers of crystalline silica dust particles, mainly 2 microns or less in diameter. The

surface of crystalline silica is now believed¹⁶ to possess electrical charges which cause denaturation of adsorbed tissue proteins and subsequent fibrosis. The denatured proteins are believed to function as antigens to cause antibody production. When the intra-alveolar macrophages die and liberate lipoproteins, further antibody production is stimulated. A fibrotic nodule ultimately develops and grows to a size of about 3 mm. Some of these nodules may coalesce, especially in the upper lobes, and such areas may become necrotic or calcified. The hilar lymph nodes tend to become enlarged, hard and adherent to bronchi or vessels, in time compressing them. Basically, Gross¹⁶ regards silicosis as a focal proliferative and obliterative alveolitis, with variable degrees of adjacent bronchial or vascular scarring. Diffuse alveolar fibrosis may follow. Complications include tuberculosis and other infections, emphysema and right heart failure, but not apparently bronchial carcinoma. "It is generally agreed that the presence of silicosis does not predispose to pulmonary cancer," Gross¹⁶ said; but Schepers¹⁹ said that "lung cancer may develop in silicotic scar tissue."

Unlike coalminers' pneumoconiosis, silicotic pneumoconiosis unquestionably predisposes to activation of tuberculosis or histoplasmosis. Relatively avirulent forms of mycobacteria have been shown experimentally to become pathogenic in the presence of silica.

Emphysema is a possible complication of advanced silicosis, but also may develop independently of that disease and therefore in a given case is not automatically a result of this fibrotic disorder.

Involvement of arterioles and smaller arteries in scar tissue is now believed to be an important factor in the genesis of some cases of silicotic disability. While the lesions may be too small to cast radiographic shadows, the secondary regional ischemia may produce functional impairment.

Clinical aspects. Simple silicosis is the common form of the disorder and rarely causes disability; it may progress to an extensive degree without symptoms. On the other hand, silicosis with secondary infection, and silicosis occurring in workers also exposed to other noxious dusts such as beryllium or asbestos may be rapidly progressive with severe dyspnea.*

The maximum allowable concentration (MAC) for silica dust under 5 microns is 5 million particles per cubic foot of air in working places (USPHS). The silica particles retained in the lung are apt to be 1 to 3 microns in diameter.

Most workers exposed continuously for 12 or more years to concentrations above the allowable

* Bauxite fibrosis (Shaver's disease) may be rapidly progressive, with emphysema and pneumothorax as complications.¹²

tend to develop silicosis. The disease may progress despite removal from exposure.

Radiologic diagnosis. Nodular accentuation of the smaller bronchovascular markings, nodular opacities, enlarged hilar nodes, conglomerate shadows, distortion of pulmonary architecture, decrease in pulmonary vascularization, localized or diffuse emphysema, decreased diaphragm mobility, cavitation and variable degrees of pleural thickening are all manifestations of silicosis. The nodes and nodules may have calcific peripheries, especially when tuberculous or histoplasma capsulatum infection complicates the disorder. When asbestos complicates the picture there may be variable degrees of pleural calcification.

The differential diagnosis includes all of the lesions previously mentioned.^{4,12}

The classification or staging is essentially similar to that of coalminers' pneumoconiosis.

Asbestosis

Asbestosis is known to develop in some persons after ten or more years of continuous exposure to large amounts of asbestos dust.

Pathology. There is a progressive interstitial fibrosis with tendency for perivenous and subpleural localization of the main lesions. When silicosis complicates the exposure, nodular changes may develop. The lung damage tends to be most severe where the greatest motion occurs, namely close to the heart and above the diaphragm. Lymph nodes, in contrast to silicosis with infection, remain unaffected. Sequelae are due to shrinkage of collagen with secondary stenosis of trapped structures (bronchioles and veins) and distortion of structures in between the fibrosed zones (causing bronchiectasis and emphysema). The complications include cor pulmonale and neoplasia. The latter occurs in two main forms, bronchial carcinoma and pleural mesothelioma. Mesothelioma is apparently particularly common in certain groups of asbestos workers (crocidolite) in South Africa. Smith²² (after examining hundreds of asbestos workers in the United States during the last two decades) did not believe that the disease predisposes to bronchial carcinoma. But Selikoff and Churg²⁰ (of Mt. Sinai Hospital, New York City) after a study of 632 asbestos insulation workers with exposures of 20 years or more, expressed belief that it does do so. It is curious that pleural calcification is common in Canadian and South African asbestos workers, but not in United States workers. Pulmonary tuberculosis is not a common complication.

Clinical manifestations. As in the case of silicosis, asbestosis develops in only a minority of exposed persons. The reason for this susceptibility is not known. The mere finding of asbestos particles in

the sputum of a person with pulmonary densities does not prove asbestosis. Dyspnea, cough and ultimately cor pulmonale may ensue. There is no constant correlation between radiographic findings and symptoms. Some persons with pronounced x-ray changes are symptom-free.

Radiologic diagnosis. Classification of asbestosis has not been as thoroughly studied as that of pneumoconiosis due to silica or coal dust. In general, the earlier signs are those of a fine haziness in the lower lung fields. Later there is a coarser degree of fibrosis, with bullous emphysema, and shaggy cardiac and diaphragmatic borders. Pleural thickening, with or without calcification, is common. It may be conspicuous in the juxta-diaphragmatic and cardiac pleura.

Differential diagnosis. Williams and Hugh-Jones submitted 53 roentgenograms which contained examples of asbestosis, other pulmonary fibrosis, and negative chests to 11 experienced observers. The results showed that the radiological appearances of asbestosis were nonspecific except in some advanced cases; observer variation in determining the stage of asbestosis was great.²⁴ Asbestosis may be confused with sarcoidosis and the other pneumoconioses. "If cases of scleroderma, lymphangitic carcinomatosis, xanthomatosis or berylliosis had been included," Williams and Hugh-Jones said, "confusion would have been even greater."

There was considerable disagreement on the presence or absence of such signs as "shaggy" heart shadows, pleural reaction and bullae:

	Shaggy Heart	Pleural Reaction	Bullae
Recorded as present by one or more of 11 observers	25	29	30
Recorded as present by six or more observers (i.e. a majority of the 11 readers). ..	3	15	6

Pneumoconiosis Due to Other Silicates

A number of "fibrous" minerals such as mica, brucite, rock-wool, fiberglass and fibrous potassium titanite can cause interstitial fibrosis and bronchial distortion. With clinical examples of these I am not familiar.

Siderosis

Ferrous pigment may collect in the "koniphore" cells of the lungs of iron welders, causing non-disabling and partly reversible pulmonary nodular opacities.

Arc welding in confined spaces may result in complicating nitrous oxide or ozone bronchitis or bronchiolitis.

Arc welding with coated rods may lead to complicating disorders depending on the coating material (silica, cadmium, etc.).

Hematite pneumoconiosis is said to predispose to bronchial carcinoma.

Berylliosis

Pathologic changes. Berylliosis manifests itself most commonly in the cutaneous and respiratory systems. There are two general types of pulmonary damage produced by inhalation of beryllium-containing dust: (a) an acute disease, which tends to be a chemical pneumonitis; (b) a chronic disease, which leads to granulomatous fibrosis, with pulmonary insufficiency and pulmonary arterial damage.

It is believed that larger particles of beryllium compounds, especially the oxide, and compounds with zinc and silicon, tend to be washed out of the respiratory tract by the mucous blanket and swallowed. Apparently little beryllium is absorbed in its passage through the alimentary canal. However, smaller particles reach the terminal bronchioles and alveoli, producing acute or chronic alveolitis, with exudate and interstitial edema, or chronic granulomatous pneumonitis. The latter may manifest itself years after termination of exposure to beryllium, and the granulomas be virtually indistinguishable from those of sarcoidosis. Pulmonary fibrosis tends to be quite pronounced and cor pulmonale not unusual. There is no enhanced susceptibility to tuberculosis, but in one group of approximately 7,000 persons exposed to beryllium compounds, six lung cancers were reported. The relationship is obscure.

Clinical manifestation. The attack rate is apparently much reduced since 1942 when "the beryllium oxide content of electric lamp phosphors was reduced to 2 per cent." The latent period may be from one to twenty years between termination of exposure to beryllium and onset of clinical signs of the chronic disease. Some cases apparently progress to cor pulmonale and death in a matter of weeks. More often there is chronic pulmonary insufficiency with emphysema (Van Ordstrand in Lanza).¹⁶

Radiological findings. Acute berylliosis may produce radiological changes indistinguishable from those of pulmonary edema or severe congestion. Chronic berylliosis shows variable degrees of nodulation and fibrosis resembling sarcoidosis and sometimes silicosis. Enlarged hilar nodes may be prominent. Ultimately emphysema and cor pulmonale may be seen.

The diagnosis may be particularly difficult in the absence of history of occupational exposure. Pulmonary biopsy is useful. While the use of beryllium has increased considerably in connection with military and space programs, protective measures have

apparently advanced to such a degree that new cases are relatively rare. Further, it is stated that re-examination of some formerly diagnosed cases has resulted in revision of the label to sarcoidosis, or to other forms of pulmonary disease such as asbestosis and silicosis.

Diatomaceous Earth Pneumoconiosis

Cooper and Cralley³ reported on 940 workers in the diatomaceous earth industry who were examined medically. Most of them had chest roentgenograms. In only 9 per cent of those with chest roentgenograms was there x-ray evidence of occupational pulmonary disorder. The illustrations in the report showed mild to moderate degrees of pneumoconiosis, without or with slight areas of coalescence or massive fibrosis. The authors classified the changes as linear-nodular, with or without confluent areas. Of 251 employees working in the industry for five years or more, 26 per cent showed lung changes. Of 109 employed ten years or more, 42 per cent; and of 63 employed fifteen years or more, 46 per cent.

Even in persons with definite confluent lesions, 57 per cent were reported as having no abnormal physical findings. Few had pulmonary function impairment. There was no evidence of increased susceptibility to diseases such as tuberculosis or histoplasmosis or to bronchial cancer.

The changes appeared to correlate with cristobalite content of the dust and length of exposure; response to amorphous diatomite was much milder.

Talc Pneumoconiosis

Prolonged inhalation of talc dust reportedly produces pneumoconiosis with nonspecific symptoms of chronic inflammatory lung disease. Progressive fibrous replacement of lung parenchyma occurs diffusely. Appearance of opaque platelike densities and asbestosis-like refractile bodies aids in differentiating talcosis from silicosis, but not talcosis from asbestosis. Occurrence of silicosis-like nodules may result from a talc reaction modified by free silica frequently found in talc mixtures.

Clinical and postmortem observations were made in six laborers exposed for an average of 24 years to dust containing appreciable amounts of talc mixed with tremolite, anthophyllite and small amounts of free silica. Progressive dyspnea was the commonest symptom; chronic productive cough, limited chest expansion and clubbing also occurred. Measurement of pulmonary function frequently did not correlate with degree of disability, chest roentgenogram findings or involvement of lung tissue.¹⁵

Roentgenograms of the chest revealed "interstitial infiltration" of variable degrees in basal and midlung fields, and opaque densities in the region

of one or both diaphragms. Cor pulmonale was observed in four patients and was the cause of death in three.

Lipid Pneumonitis

Lipid pneumonitis has been reported in some textile workers who use mineral oil to lubricate fast moving fibers.

Pathologically, alveolar septal infiltration may be followed by bronchiolar epithelial thickening and emphysema. Symptoms include cough and exertional dyspnea. Radiologic findings are reportedly inconclusive. Periodic pulmonary function tests are advised to aid in estimating disability.

Hair Spray Thesauriosis

Prolonged or excessive inhalation of hair sprays has been blamed for some cases of nodular pulmonary disorder with mild dyspnea. No specific ingredient has been validated at biopsy or necropsy. Cessation of exposure has been followed in some cases by regression of radiologic changes.¹ Since sarcoidosis can show an identical appearance and clinical course, many investigators believe that this is in fact the underlying disorder.⁸ Others suggest that hair spray materials may potentiate sarcoidosis. The problem is unsettled.

Pneumoconiosis and Carcinoma

Silica reportedly potentiates the injurious action of numerous dusts and some microorganisms, notably the mycobacteria of tuberculosis. Some writers have suggested that it may increase the chance of malignant change, and that "cancer often develops in silicotic scar tissue." Conversely it is claimed that neoplasms developing in persons with silicosis tend to spread more slowly "because of the antecedent fibrosis with closure of lymphatic channels" and that they are therefore "more favorable for surgery." These may be armchair deductions. We are unaware of statistically valid studies indicating that primary bronchial carcinoma is more common in persons who have silicosis than in those who do not. However, there is evidence that in some parts of the world there is inordinate coincidence of pleural neoplasms and asbestosis. Several cases of pleural mesothelioma have been reported in South African asbestos workers.

Radioactive Ore Mining and Carcinoma

There are numerous reports of an increased incidence of primary bronchial cancer in workers exposed to large amounts of radioactive materials in the inhaled air. Here again, detailed analysis has raised some questions. One of the more careful studies is in progress in this country, a preliminary

report on which was recently made by Wagoner and associates (primary bronchial carcinoma in American uranium miners and millers).²³ A total of 5,370 miners and millers was available for study at intervals during a period of years in the Colorado plateau area. Death certificates were obtained for 297 miners and millers. There were 12 deaths classified as due to cancer of the respiratory system (as compared with approximately three expected). Amongst miners with five years or more of underground work, the deaths classified as due to cancer of the respiratory system numbered 11, as compared with approximately one expected.

The precise breakdown in these deaths as to primary squamous cell bronchial carcinoma, adenocarcinoma, alveolar carcinoma and pleural mesothelioma was not given. In the entire series of deceased workers, autopsy had been performed in roughly one-third and "all of the death certificate diagnoses of respiratory cancer were confirmed histologically."

Wagoner²³ observed: "Common to the uranium mines of the United States and Joachimsthal and Schneeberg are silica dust and air-borne radiation. In contrast to the European mines, constituents of the ore suspected of carcinogenic activity in man (arsenic, chromium, iron, and nickel) are present only in minimal amounts in the United States uranium mines. Since epidemiological studies have not incriminated silica dust in the development of pulmonary neoplasia, attention must be directed to radiation."

Analysis of the air-borne radiation indicated that about half the miners were working at levels containing more than five times the recommended tolerance. The authors concluded with this cautious summary: "The excess of respiratory cancer was not attributed to an effect of age, smoking, nativity, heredity, urbanization, self-selection, diagnostic accuracy, or silica dust and other ore constituents. It appears likely that the air-borne radiation contained within the uranium mines was responsible for the excess of respiratory cancer."

Those in the miners in the Schneeberg and Joachimsthal areas have long been regarded as classic examples of radiogenic bronchial carcinomas. However, precise documentation as to the number and type of tumors found at autopsy is difficult to ascertain. Hueper,¹³ in a monograph on Occupational Tumors, said that these mines were originally very dusty, that the miners were men in poor economic status, and were not disposed to use their protective masks. In the decade 1869 to 1879 the average annual reported number of miners dying with primary lung tumors, as diagnosed by the company's physicians, in the Schneeberg area, was 16. This number tapered off to about three per

annum in the decade ending in 1935, a tapering that was more than proportionate to the decline in the number of workers.

Most of the Schneeberg miners had been employed from 20 to 50 years before cancer had been diagnosed: in the case of the Joachimsthal miners, the common employment period was from 13 to 23 years.

The reported average age at death from bronchial cancer in the Schneeberg area was 55 years, and in the Joachimsthal area 49 years.

In 1922 Rostoski and coworkers reported 13 autopsy-verified bronchial cancers out of 21 deaths during a period of three and a half years in the Joachimsthal area. Hueper then referred to the histologic findings in nine cases in the Joachimsthal area: Squamous cell carcinoma in two, undifferentiated carcinoma in six, probable primary pleural tumor in one. In one case only there were "multiple primary tumors with different histologic structure."

Lorenz,¹⁸ after an exhaustive review of the data from Schneeberg and Joachimsthal, concluded that radon could not be incriminated as the sole cause of the cases of lung cancer seen in these miners. He thought that possibly other irritants, heredity and associated factors might be involved. He noted that there was no evidence that radium or radon had induced lung cancer in man outside of these particular mining districts.

Spencer²² again reviewed the matter in 1962 and quoted Sepke to the effect that lung cancer in these miners was now becoming rare "because of improved working conditions," and that there had been no reported increase in the incidence of lung cancer in the uranium miners of Colorado, the Congo or Canada.

If inhaled radioactive gases and dusts cause primary bronchial cancer, one might expect that a number of the afflicted miners would have multiple or multicentric tumors. A search of the literature elicited scant evidence to support that conjecture. Hueper¹³ did report that the Schneeberg-Joachimsthal lung cancers "vary a great deal in structure—many were squamous cell carcinomas, others anaplastic or round cell carcinomas, and a few adenocarcinomas," but, precise details are lacking, and multicentricity not recorded. Ackerman in a personal communication to me dated March 10, 1964, stated: "I tried vigorously to get hold of the Schneeberg lung cancers. I talked to a pathologist who had seen them, and he said they had multiple foci of origin and varied considerably in histologic type." Unfortunately Ackerman could not recall the name of his informant.

It is noteworthy that on so simple a topic as the prevalence of silicosis in the Schneeberg and Joachimsthal miners there is considerable diversity of

opinion. Viel, in 1935, reported that pronounced silicosis was common amongst these miners. Then Pircken and Sikl reported that no pneumoconiosis could be found. (All quoted in Hueper.¹³)

Hueper¹³ summarized the matter by observing that there is much suggestive, but not conclusive, evidence relating radioactive dust and gas inhalation to primary bronchial carcinoma. He listed eight investigators who, for a variety of stated reasons, believed that the evidence is unconvincing. He then concluded that the reported attack rate of lung cancer amongst these miners is sufficiently high to leave no reasonable doubt as to the radioactive origin of many of them.

Other Dusts and Bronchial Carcinoma

Many observers have reported that, on the basis of epidemiological and statistical studies, the incidence of lung cancer is greater in men who work in nickel refining, bichromate manufacture and hematite mining. Some report an increased incidence in men who work in steel foundries, in sand blasting and in the manufacture of isopropyl alcohol. The precise degree of risk in these dusty or potentially dusty occupations is not generally agreed upon, and of course it is not possible scientifically to distinguish bronchial cancer of apparently occupational dust origin from bronchial cancer arising from other causes. The incidence is apparently very low in the named occupations; there is said to be a latent period of about 20 years between exposure and manifestation of the neoplastic disease; reproducible experimental evidence as to the nature of the apparent carcinogen is not on record.

Silicosis and Smoking

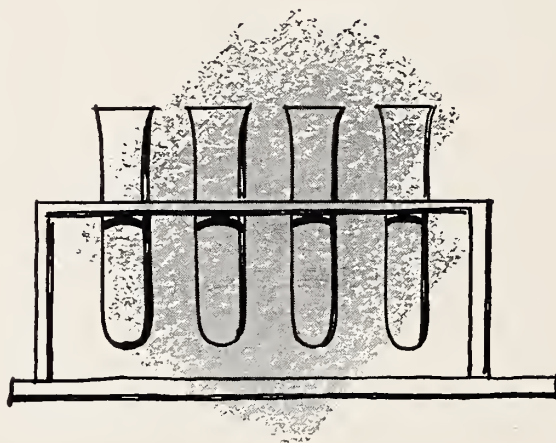
To end on a cheerful note from the report of the Advisory Committee to the U.S. Surgeon General (1964): "In a study of 4,014 Scottish coalminers, the prevalence of respiratory symptoms among non-smokers was appreciably lower than among smokers of the same age . . . However, among smokers of 50 years of age and above, the prevalence of pneumoconiosis tended to be lowest among the men who smoked the most, and highest among men who smoked the least." (page 298; reference, Ashford, J. R. and coworkers. Smoking habits and radiologic pneumoconiosis amongst coal workers at three Scottish collieries. *Brit. J. Prev. Soc. Med.*, 15, 106, 1961.)

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The Private Psychiatrist in a Community Mental Health Program

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■ *The apparent line of separation between public and private medical communities is less a mutually exclusive one than it is sometimes assumed to be. A community consultation service in a major metropolitan community has served as a means for the involvement of the private medical community in a county mental health department program. This service at present utilizes 92 private psychiatrists to provide consultation to 71 agencies, public and private, throughout the county. Despite administrative problems, it is felt that the involvement of the private practitioners has broadened the county mental health department's services and at the same time has increased the professional sophistication of the practitioners. It has served as a demonstration of the feasibility of a working partnership of private and public resources for the betterment of the community's mental health.*

CURRENT POLITICAL EVENTS have intensified the concerns of physicians about the divisions between public and private medical care. Most physicians see a valid function in society for public medical programs of various sorts, but they resent the attempts of government to intrude on what they see as their

own legitimate sphere of activity. The dichotomy is highlighted in the field of psychiatry because of economic as well as social factors. Since this is a time of reorganization of public psychiatric services, it is easy to see them as related to the current conflicts between private medicine and government out of proportion to the realities of the situation. The isolation of the traditional state hospitals from urban communities has added to the separation of public psychiatric programs from the mainstream of private community medicine.

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Based on a paper presented at the section on Community Psychiatry of the Western Divisional meeting of the American Psychiatric Association, September 26, 1963 at San Francisco.

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However, the current shift to the communities of the public psychiatric programs, at least in California, is a force in the direction of increasing integration of public psychiatric program with private psychiatry. Development of public psychiatric programs in urban communities offers an opportunity to involve private physicians in the public programs and to bridge some of the lines of separation. The County of Los Angeles operates a local mental health program under the provisions of California's Short-Doyle Act. One aim of this program has been the promotion of a closer working relationship between the public services and the private practitioners in the county.

The Consultation Program

One approach to this has been afforded by the mental health consultation program. This program is designed to provide consultation to governmental departments that want and need it, and also to private agencies whose efforts to help people in emotional crisis can be facilitated by consultation.

The concept of mental health consultation is a relatively new one to many physicians and should perhaps be clarified for this reason. It is quite a different process from what physicians ordinarily think of as "consultation." The usual medical form of consultation is a matter of one physician asking another to see a patient in order to evaluate some aspect of the patient's condition with which the consultant is particularly qualified to deal. Mental health consultation is quite different, since the consultant in this process does not ever see the patient. Mental health consultation developed out of the fact that psychiatric illnesses are intimately related to problems of human relationships, and that many kinds of professional persons other than psychiatrists provide help to people with such problems. General physicians, other medical specialists, clergymen, social workers, psychologists, counselors, probation officers and teachers (as well as many others) are faced with problems of human relationships in varying degrees, up to and including frank psychiatric illness in their clientele. The capacity of professionals in these categories to help people with psychiatric problems is related in part to the opportunity for them to discuss thorny cases and problem areas with more intensively trained psychiatric professionals. Such discussions, even where the consultant has no direct contact with the disturbed person, have been found to enhance the effectiveness of the non-psychiatric professional.

A program of such mental health consultation was one of the first new services instituted by the Los Angeles County Mental Health Department after its formation in 1960. The program has grown in size since its inception and now has a considerable

influence on the agencies in the county. Some parts of this program can be accomplished effectively only by full or half-time consultants; but the greatest part of the program serves many agencies spread over Los Angeles County, each agency having only a small amount of consultative time provided. This latter requirement provides an opportunity to involve private psychiatrists in community mental health service. The greater cost of paying a fee-for-service rate has been offset by (1) the saving of travel time which would have been necessary if consultation were provided by block-time county physicians, and by (2) the opportunity to recruit consultants of broadly varying skills and interests.

The provision of public services within the context of private medicine serves as a demonstration of the essential consistency of these two concepts. Finally, the program stimulates interest and increases skills in community mental health consultation in a large number of the private psychiatrists in the county. This benefits the County Mental Health Department, in that more interest and skill in community mental health activities increase the likelihood of recruitment of psychiatrists into other aspects of our program. It is of benefit to psychiatry in general—and ultimately, to the medical profession as a whole—in that it encourages psychiatrists to be less parochial in their practice of psychiatry and to involve themselves more in the general community. Perhaps psychiatrists who participate in programs such as this might in time become more involved in general community medicine. It is our impression that to some extent this has occurred.

Of our present group of 92 consultants serving 71 agencies, both governmental and private, only a few have had previous experience in consultation. From the point of view of involvement in community medicine, the private psychiatrist often travels the following course. Upon graduation from residency training he works full or part time for a year or two in treatment or diagnostic programs, until his private practice has developed to the point that he can spend full time in his office. He has usually worked in block-time positions which he likely will not resume later because of the pressures of his private practice. Just when he achieves enough clinical experience to be an able consultant to an agency, he has become most heavily committed to his practice. He does volunteer his time for teaching assignments and speaking engagements, but these activities make him even less available for other community work, especially work without remuneration.

The introduction of the consultation program as designed by the Los Angeles County Mental Health Department with its per session service (remuneration is by the session, a session consisting of an hour

and a half at the agency) has made it possible to utilize private psychiatrists of broadly varying skills and areas of specialization and of greater experience and seniority, who would not be available for block-time appointments.

The very existence of this large program has stimulated an interest in agency consultative work. Many psychiatrists prefer to spend some time away from their practices to receive a different kind of stimulation than that received from psychotherapeutic work. Others, initially reluctant to become involved in community consultation work, have become so enthusiastic as a result of their experiences in it, that they have made this kind of work into a major professional investment for themselves. Comments are frequent about the broadening of awareness and the interchange of ideas with other care-giving disciplines. Certainly the variety of agency functions offers this opportunity. The spectrum is broad and includes consultation to schools, children's residential facilities, probation departments, health departments, family service agencies, adoption agencies, maternity homes and others.

Such a program presents the medical administrator of the Mental Health Department with problems peculiar to such a decentralized consultation service. The consultants, not being members of the Department's full-time or block-time staff, are not able to maintain an ongoing awareness of the overall directions of the program, or of the Department's day-to-day problems and development. Communication between the Department and the consultants is time-consuming and far from ideal. Programs of in-service training are hard to schedule and evaluate. Matching of agencies and consultants requires phone calls, visits and often complex schedule adjustments by all concerned.

We have attempted to evaluate the effectiveness of the program by means of forms filled out by each consultant and each consultee (or consultee group) after each consultative session. We have also spent some time visiting and talking with both consultants and consultees, and in evaluative institutes and meetings with both groups. Our conclusions from this are still tentative and more in the form of clinical impressions than objective measurements. They in-

dicate that the program is of definite value to the consultees by their own appraisal, but the value to the clients is much harder to measure. Our plans include a more objective approach to evaluation of this program in the future.

Future Perspectives

The County Probation and Mental Health departments already provide a small amount of direct clinical service by private psychiatrists, on a contract, fee-for-service basis, for cases in which such service cannot be provided by a clinic directly. It is felt that these services, provided to emotionally disturbed, delinquent youths, have been valuable in decreasing recidivism. A controlled study is now being carried out to attempt objective measurement of such benefits. If this program can be demonstrated objectively to be more effective in prevention of recidivism or similar problems of such youths, it would provide another locus for expansion of the involvement of private practitioners in the program.

There are other, yet undeveloped, ways in which private medicine can be involved in a public psychiatric program. One approach contemplated for the future is the use of private psychiatrists as consultants to private, non-psychiatric physicians on treatment of emotional problems in the non-psychiatric physicians' practices. This approach is viewed as an educative device rather than as a direct clinical service program. Consultative services in the traditional medical sense (involving psychiatric evaluation of the patients by psychiatrists) would be done as a function of private practice. The only service provided at public expense would be consultative discussion between consultee physicians and psychiatric consultants. A problem to be resolved in this regard is whether the continuing medical education provided by such a program is properly a charge on public tax funds, or whether some other form of funding should be developed. The interest of the privately practicing non-psychiatric medical group in such a program would, of course, be the prime determining factor in its success or failure.

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Gastrostomy

In the Treatment of Dysphagia

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■ *The patient who has had prolonged, severe dysphasia deserves special attention. One method of treatment is the use of a permanent gastrostomy. The authors, modifying the principles of the Beck-Jianu gastrostomy, were able to improve the primary complication of gastrostomy, namely excoriation of the skin secondary to leaking of gastric contents onto the abdominal wall. After operation various tests were utilized to attempt to force gastric contents through the gastrostomy tube onto the abdominal wall. Regurgitation of gastric contents through the modified Beck-Jianu gastrostomy did not occur.*

THE PATIENT who has dysphagia deserves special attention to solve his nutritional problems. At Rancho Los Amigos Hospital, where persons with neurologic disorders of many types come for rehabilitation and chronic care, there are many who have dysphagia during the course of their illness. Their nutrition must be maintained. These patients fall into three groups:

1. *Patients who have temporary dysphagia necessitating nasogastric tube feedings until swallowing returns.* In this group, which embraces the majority of cases, tube feedings can be discontinued when the patient regains his ability to swallow. Instruction and practice under the direction of an experienced physical therapist are helpful in teaching the patient to swallow without aspiration. Gastrostomy is not indicated.

2. *Patients having borderline swallowing ability,*

with temporary superimposed infection or exacerbation of a neurologic disorder, producing acute but temporary dysphagia. Nasogastric tube feedings are utilized to provide alimentation until the acute illness recedes and swallowing returns. However, some of these patients will not regain the ability to swallow because the nasogastric tube itself has become an irritant, causing enough inflammation and edema of the pharynx and esophagus to make the borderline swallowing ability ineffective. To regain oral alimentation there must be a temporary means of providing nutrition without the presence of the nasogastric tube until the edema and inflammation of the esophagus have subsided. A thorough check should be made of the patient's pharyngeal muscle function, and if it is intact a Stamm temporary gastrostomy should be done. The patient can be taught to swallow by the physical therapist in two or three weeks. When the patient's oral caloric intake is adequate, the gastrostomy can be discontinued by merely withdrawing the tube.

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Submitted May 28, 1964.

3. *Patients who have such severe dysphagia that they do not regain the ability to swallow over a long period of time, and are never expected to recover swallowing ability.* These patients require either a nasogastric tube for the rest of their lives or permanent gastrostomy.

The nasogastric tube and the gastrostomy each has its proponents as a method of alimentation; each has its disadvantages. A nasogastric tube is uncomfortable, causes nasal irritation, and must be inserted by a physician. It can cause esophagitis, erode the esophagus, and result in mediastinitis. Farris and Smith⁴ sent 200 questionnaires to their colleagues in regard to complications following intubation. In the 115 questionnaires returned to them, they found a few cases of esophageal perforation requiring mediastinal closure, 22 cases of late esophageal stricture formation requiring esophageal dilatations; and of 238 cases of laryngeal complications, there were 79 that required tracheostomy to relieve the laryngeal edema. Intubation also predisposes the patient to atelectasis and pneumonia due to retained secretions. Getting up tracheobronchial secretions is usually a problem to these patients. The presence of a nasogastric tube makes the removal of tracheobronchial secretions much more difficult.

Gastrostomy also has its disadvantages.² The gastrostomy stoma requires care. The main disadvantage is excoriation of the skin around the stoma. This depends on how much leakage of gastric juice occurs. Since this is essentially a chemical burn, cleansing the skin about the stoma with a solution of baking soda and applying an aluminum hydroxide gel is helpful. However, it is ineffective if the gastrostomy leaks gastric juice.

Many methods have been advocated to accomplish a permanent gastrostomy.⁷ The aim in each is to provide a fistulous tract between stomach and abdominal wall into which a catheter can be introduced for feeding and then withdrawn between feedings without leakage of gastric contents.

Witzel's method was to hold the gastrostomy tube in with a purse-string suture, form a tunnel for the tube by sewing the gastric wall over it, and bring the tube out through a stab wound in the abdominal wall.¹

In 1896, Kader fashioned a modified ink well, consisting of two parallel ridges drawn up beside the tube at right angles to the stomach.¹

LePage and Janeway formed a gastric fistula by utilizing a transverse flap from the anterior wall of the stomach.¹ This fundamental principle has been modified by many surgeons. Some of the modifications have resulted in complicated procedures with the construction of folds and valves.

Marwedel buried the gastrostomy tube in a submucosal tunnel by making an incision in the seromuscular layer, tunneling the tube under the submucous layer and finally into the stomach lumen.¹

Albert Frank brought a cone of the anterior stomach wall out of a stab wound and fixed it there; it was later opened.¹

A jejunal fistulous passage has been created between stomach and skin, utilizing an isolated loop of jejunum with intact mesentery.^{1,3}

Spivak made a valve by creating a fold at the base of an anterior stomach wall flap. The flap was then sutured around a catheter and brought out through the abdominal wound.^{2,8}

Beck and Jianu developed a gastric fistula from the greater curvature of the stomach, hinging it from the fundus.⁸ The fistulous tract was brought out through a left paramedian incision and then through a subcutaneous tunnel superolaterally so that its stoma was over the left seventh intercostal space. The left gastroepiploic artery acted as a mesenteric artery to nourish this gastric fistula. Pressure of skin over the ribs kept the fistula flat, and supposedly prevented leakage of gastric contents onto the skin. The advantages of this procedure are its technical simplicity and infrequent leakage. However, we have observed leakage with skin excoriation in cases where the Beck-Jianu gastrostomy has been used.

The authors, utilizing a similar principle, formed an isoperistaltic gastric fistula from the greater curvature. It was hinged from the antrum, rather than the fundus. The right gastroepiploic artery, instead of the left, was its vascular supply. The fistula was brought out through a midline upper abdominal incision and then, by way of a subcutaneous tunnel, to the seventh intercostal space on the left. This procedure was used in the two cases summarized below.

Reports of Cases

CASE 1. A 44-year-old Caucasian woman had progressive familial myoclonic epilepsy resulting in generalized degeneration of the central nervous system. This began at the age of ten and progressed over the years with a gradual downhill course. Eventually, nasogastric tube feedings were necessary. On July 21, 1961, the authors' gastrostomy was performed. A tracheostomy was also done to facilitate the postoperative suctioning of tracheobronchial secretions. Postoperative recovery was uneventful. The stomach was very narrow at the time of operation and the gastrostomy fistula was approximately half the width of the organ. However, postoperatively the stomach dilated and the patient could take 500 ml of food at each feeding.

CASE 2. A 52-year-old Caucasian woman with hypertension had multiple strokes resulting in left hemiplegia, dysphagia and aphasia. She also had evidence of vascular degeneration in other areas, with coronary insufficiency and left ventricular hypertrophy. There was pronounced calcific arteriosclerosis of the aorta and iliac arteries. For more than a year and a half feeding had been by nasogastric tube. There was no change in her condition during this time except that, for some unknown reason, hypertension decreased. The patient recognized relatives; she comprehended simple words and sentences; and she indicated by non-verbal means that the nasogastric tube was irritating to her. Her relatives requested that gastrostomy be done. Gastrostomy by the method of the authors was performed on March 15, 1962. The patient recovered from the operation without any special problems. The gastric remnant has dilated to take a normal tube feeding of 500 ml four times a day.

In neither of these cases was there leakage of stomach contents or skin excoriations. Only the secretions of the fistula itself were ever observed on the dressing, and these consisted mainly of mucus.

The patients were placed in every position in an attempt to induce leakage, yet none occurred, nor did coughing or pressure on the abdomen bring it about. Methylene blue was introduced by nasogastric tube into the stomach of both patients and air was pumped into the stomach until there was considerable pressure in the tube. The patients were observed for an eight-hour period and in that time none of the methylene blue appeared in the gastrostomy fistula. With methylene blue in the stomach, the patients were made to cough, and were changed to all positions that might cause leakage, but none occurred.

Both of these patients vomited occasionally after gastrostomy but never at such times was there any regurgitation of stomach contents through the gastrostomy fistula.

Fluoroscopic examination was carried out to find out why the gastrostomy did not leak. It was found that there was a valve action at the point where the gastric fistula comes out of the linea alba in the midline and bends laterally to follow its subcutaneous course.

The amount of secretion in the gastric fistula was measured. A catheter was placed midway in the

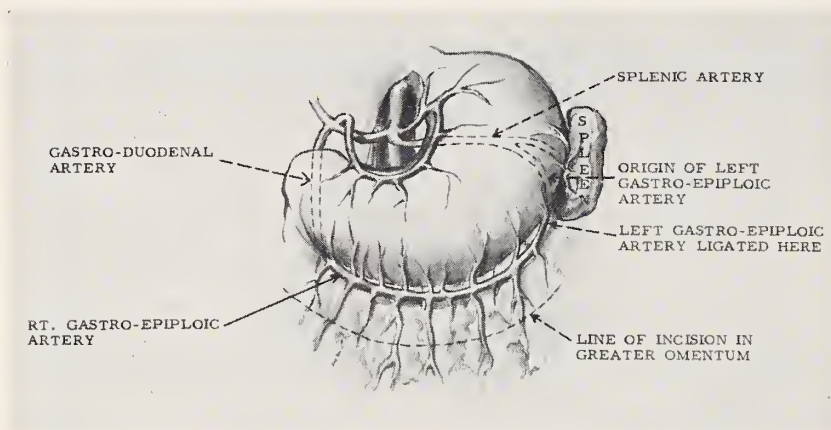


Figure 1.—Anatomical basis of the formation of a gastric fistula of the greater curvature of the stomach with the right gastro-epiploic artery as the vascular supply.

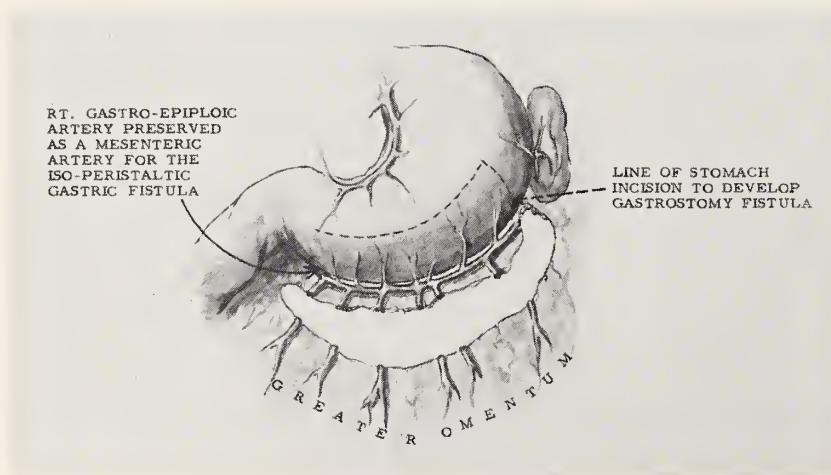


Figure 2.—Line of the greater curvature incision to form the gastric fistula.

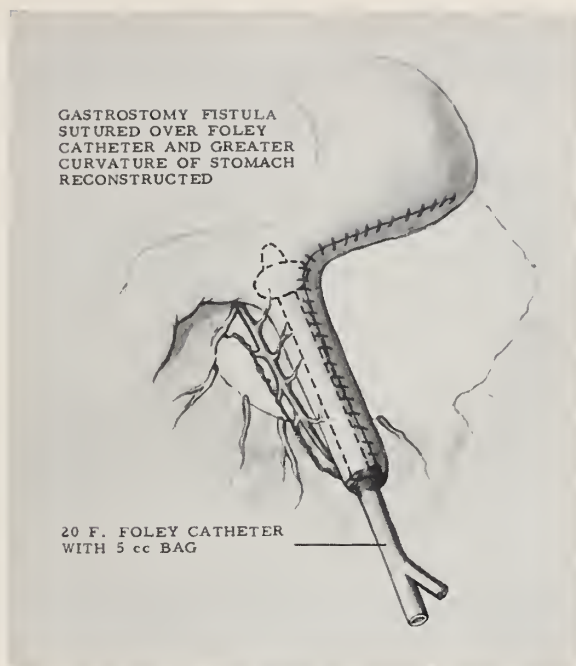


Figure 3

fistula and connected to a suction machine for continuous suction. This was left in place for 24 hours. There were only one to two ml of secretion in the tubing after 24 hours in both patients. This confirmed our original observation that the fistula secretes only an inconsequential volume of fluid and mucus. This is very significant in that skin exco-riation occurs only when there is a definite leakage of gastric juices onto the skin.

The favorable experience in the only two cases in which it has been used warrants a presentation of the technical details of our procedure.

Details of Procedure

After making a midline upper abdominal incision, the gastric fistula is formed from the greater curvature of the stomach. Care must be taken to insure enough width of the antral remnant to allow the passage of stomach contents. The right end of the stomach incision should not extend any closer than 3 cm from the pylorus. A silk suture marker is placed at this point. The fistula is 15 cm long—approximately the same length as a No. 4 scalpel—and 3.5 cm wide. Even though the stomach may be considerably narrowed due to the patient's having had tube feedings over a long period, the stomach remnant dilates postoperatively. Therefore, a small stomach does not contraindicate this gastrostomy. The greater omentum is incised along the greater curvature, as illustrated in Figures 1 and 2, with care taken to preserve the right gastroepiploic ar-

tery. The left gastroepiploic artery is ligated at the greater curvature.

Curved Carmalt clamps are applied along the line of the stomach incision as shown in Figure 2. After the stomach is incised between the clamps, the fistula is swung to the right (Figure 3). The edges of the mucous membrane are approximated with 00 chromic catgut suture continued for the whole length of the stomach incision and the fistula. The seromuscular edges are approximated by continuing the same suture in the reverse direction. Interrupted 000 black silk Lembert sutures complete the suture line. A Foley catheter inserted in the fistula after the mucous membrane has been approximated aids in the suturing of the last two layers.

A "button-hole" incision for the stoma is made in the skin over the seventh intercostal space 4 cm lateral to the left costal margin (Figure 4). A subcutaneous tunnel is prepared for the fistula from the linea alba to the button-hole incision. The fistula and Foley catheter are brought up into place in this subcutaneous tunnel. Care is taken to prevent torsion of the fistula.

When closing the abdominal wound, the peritoneum and the fascia are both fixed to the base of the fistula. The fistula stoma is sutured to the skin edge of the button-hole incision with a continuous 000 chromic catgut suture.

Postoperative care is the same as for patients who

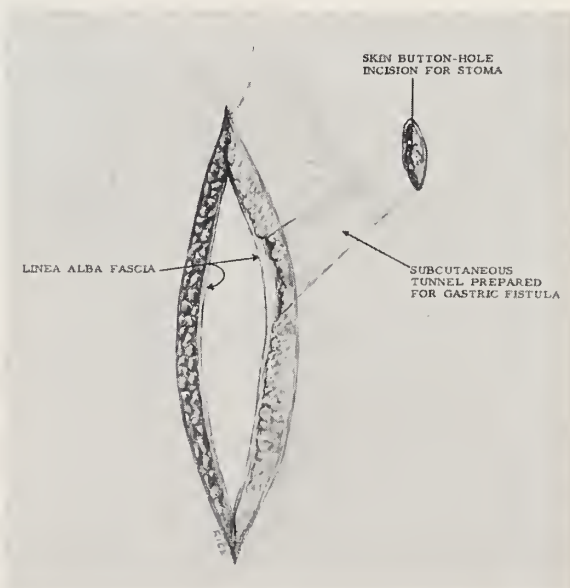


Figure 4.—The gastric fistula is brought up in place into the subcutaneous tunnel shown above and the stomal mucosal edges approximated to the skin edges of the "button-hole" incision. The midline wound is approximated in layers after the fistula is fixed to the linea alba with several interrupted sutures.

have had partial gastrectomy. We prefer to leave the Foley catheter in and connect it to a Wagensteen or Gomko suction machine. We continue administration of intravenous fluids for four to five days. As soon as bowel movements begin, gastrostomy feedings are started. A gastrostomy tube is passed with each feeding and removed between feedings. At first, small feedings are given every four hours. Then the amounts are gradually increased and the number decreased.

The patients in the cases reported herein had severe neurological disease. Therefore, a strenuous postoperative program to prevent atelectasis was of vital importance. This consisted of turning the patient every two hours in rotation to all four sides. When the patient was prone, a pillow was placed under the abdomen so that postural drainage could be effected, and the chest was gently pounded to loosen mucous plugs. Expectorants were prescribed. An Aero-jet humidifier was used to humidify the

air. A Cofflator was used with the patient who had tracheostomy.

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Present Status of Medical Education in Poland

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■ *In the past few years medical education in Poland has undergone considerable change, particularly at the graduate and postgraduate levels, and has shown increasing Western influences. On the negative side, a physician who was trained in pre-war Poland and is now in the United States, noted mass production of physicians with modest clinical facilities and the preponderance of didactic lecturing over semi-individual instruction—conditions rather characteristic of most European medical schools. On the positive side were well-informed, up-to-date faculties and the thoughtful planning and organization of graduate and postgraduate medical education. The overall impression was a favorable one, but the system of schooling and of evaluation of students' work made it possible for indifferent students to progress to licensure.*

THE PURPOSE of this communication is to present a brief survey of the current status of medical education in Poland and to examine it in the light of present-day trends of medical education. The survey is based on a visit to Poland which included tours of several Polish medical schools and interviews with faculty members, practicing physicians and medical students. The evaluation was facilitated by the fact that the author attended and was graduated from a medical school in prewar Poland.

The Medical Profession in Present-Day Poland

At the time of the outbreak of World War II there were some 13,000 physicians in Poland for a population of about 35,000,000. The physicians were concentrated mostly in cities and towns, and while good medical care was available in densely populated areas, the small villages and sparsely populated parts of the country had too few physicians.

During the war the medical profession suffered very heavy casualties. Furthermore, many physicians, who were given the opportunity to settle in England after service with British armed forces during the war, elected not to return to Poland. As a consequence, a disastrously small medical population of 5,000 to 6,000 physicians was left to care for a population of 24,000,000 in the new Polish state. Large demands for new physicians were met by accelerating instruction in medical schools, with teaching conducted frequently in makeshift temporary quarters.

In the past 15 years the medical population has increased to 32,000 physicians. Virtually all physicians today are employed by the government and are salaried. The pay is very low, the beginning salary being about 1,350 zloty per month (\$55 at the official rate, \$18 at the *de facto* rate); top salaries in the medical profession, paid to professors, are between 4,000 and 5,000 zloty a month.

Cost of living is high in relation to the pay scale. Bare essentials—housing, food and clothing—for

Submitted May 19, 1964.

a small family far exceed the minimum salary of physicians, so that it is necessary to supplement the family income. This can be done by part-time positions after hours, private practice and income from salaries of wives and other members of the family.

The average medical position involves a seven-hour day, six days a week, usually from 7:00 a.m. to 2:00 p.m., which permits conveniently another half-time job in the afternoon. Most physicians take advantage of the opportunity to avail themselves of such supplementary positions. Furthermore, physicians can also take night duty at hospitals and emergency units at extra pay. Many physicians engage in private practice not only in larger cities but also in small communities, especially in farming districts, the farmers being the best customers. Practice is permitted by the government but is discouraged by heavy taxation on income—taxation that is often punitive, for it is based not on actual income but on the tax collector's guess of income from practice, judged from the family's standard of living. Private practice consists entirely of office work, since hospitals do not provide facilities for private care.

Medical care is provided free only for government employees, which includes most of the population, except for the small segment engaged in private enterprise. Therefore, technically there is no universal free medical care such as the British health system provides. Self-employed persons can buy inexpensive prepaid medical care from the government, but relatively few do. They have to be cared for by private physicians in offices or, if in need of hospital care, they have to pay an all-inclusive daily rate, which is very low. Private enterprise in today's Poland consists of small stores, businesses and farms; its largest single group is in agriculture, which is also the most prosperous segment of the self-employed population. Private practice of medicine, of course, is not limited to self-employed persons; many citizens entitled to government medical care consult private physicians, particularly specialists.

Government-provided medical care is given in hospitals—all are government owned—and in health centers, which resemble our out-patient clinics. Such centers are scattered all over the country and are provided with ambulances and planes, thereby making medical care within easy reach of every person. Hospitals are staffed entirely by specialists, health centers largely by general practitioners. The ratio of general practitioners to specialists in Poland is about three to one.

The medical profession as a whole has neither the prestige nor the financial security that it had in the prewar society. The average physician is har-

assed and overworked. Having two or three jobs, necessary to make a modest living, he often performs at minimum capacity, especially since the incentive of betterment as a reward for excellence is missing. Medical institutions, particularly hospitals, are overstaffed and are often run inefficiently. The image of the physician has been declining in Poland, perhaps even more than in other countries, and this has been enhanced by the fact that the press has often been unkind to the medical profession.

The government, through its Ministry of Health, which decides upon the number of students to be trained, has embarked on a continuation of mass production of physicians at the current rate, which is more than 2,500 graduates a year. Some physicians are sent to underdeveloped countries, particularly Africa. Yet those working in Poland today look to the future with some apprehension that the now freely available "second" jobs will become scarce. That would reduce even more than at present the standard of living of the medical profession, which, incidentally, is lower than in the engineering professions and in industry. As a consequence, there has been a precipitous decline in the number of applicants to medical schools.

Medical Schools and Academic Medicine

Before World War I, Poland did not exist as an independent country but was partitioned among three powers, Germany, Russia and Austria. The southern part of Poland under the Austro-Hungarian Empire enjoyed by far the highest degree of cultural freedom. Two universities located in that section, at Cracow and Lwow, flourished and their medical schools built excellent reputations. Their faculties were trained almost exclusively in Vienna, then celebrated as the medical center of Europe. Many internationally known scientists and teachers taught or were trained at the medical schools in Cracow and Lwow. After the creation of the Polish state in 1918 these two medical schools set the national standard so that the curriculum and academic standards of the three other medical schools (Warsaw, Poznan and Wilno) were indirectly patterned after Vienna. During the interwar period medical education in Poland was by European standards quite good, perhaps better than average, for classes were relatively small (the number of students restricted to 120 or less) while many other European schools were accepting all applicants.

After the last war Polish medicine stood against what appeared to be insurmountable difficulties: teaching staffs were reduced even more, in proportion, than the medical profession as a whole and yet medical teaching had to be not only reestablished but greatly expanded. Consequently, old pro-

fessors were called back from retirement and taught well into their seventies. Even the most inexperienced prewar teaching assistants had to assume positions of responsibility. Whole cadres of new teachers had to be trained. Physical facilities had to be rebuilt or built from scratch.

Although the basic structure of medical education proceeded along traditional lines, Russian medicine began influencing medical education in Poland. For example, schools for *feldshers* were organized, providing grossly inadequately trained personnel. Fortunately, they were closed down after two or three years as soon as a steady supply of physicians seemed assured. Furthermore, some schools developed separate curricula for pediatricians, who received instruction pertaining only to diseases of childhood, thus making pediatrics not a specialty but a separate discipline, such as dentistry. This has not become popular and, even though still in existence in one or two schools, a separate pediatric curriculum is in the process of being altogether eliminated. Finally, following the Russian pattern, medical schools were detached from universities and made into independent professional schools for health sciences, "Medical Academies," which are under the jurisdiction of the Ministry of Health, rather than the Ministry of Education.

The process of building physical facilities and academic manpower has been successful and Poland now has 11 medical academies, including one military medical academy. These academies are, as a rule, attached to large hospitals, some prewar, some newly constructed. Basic science departments have large lecture theaters and old-fashioned, standard laboratories. Hospital services, referred to as "clinics," consist mostly of patient wards with little available laboratory space. Although modern equipment is quite scarce, some "clinics" managed to organize modest, but impressive research laboratories. Many difficulties arise with the problem of maintenance of equipment, which is most frequently imported from Sweden or West Germany because of lack of electronic experts and technicians. One can hear stories of expensive pieces of equipment imported from abroad and abandoned after a few months because of inadequate repair facilities.

Medical academies consist of several professional schools, such as schools of medicine, dentistry, pediatrics, pharmacy and nursing. They have self-government, in that the academic senate elects by secret vote one of its members to become rector (president) of the academy and each school elects the dean. These positions are rotated for three-year periods and are taken in addition to the regular responsibilities of a given professor. Elected officials, however, have to be approved by the Minister of Health. Each school issues diplomas in its field,

which are tantamount to licenses to practice in Poland. Academies can also grant higher degrees, *Doctor* and *Docent*. Degrees of Doctor of Medicine require two years of graduate work in a scientific field, the writing of a thesis and the passing of an examination. Relatively few physicians take doctorates, as they have little meaning in ordinary medical work although they are essential in academic medicine. The degree of Docent is given to members of medical school faculties after several years of teaching and research. A prerequisite is the completion of a major scientific work, such as an elaborate article or monograph. This degree entitles one to permanent academic tenure in a position equivalent to our associate professorship. Under current conditions of supply and demand for the top positions, docents have high probability of eventually occupying a chair.

Poland's medical schools have many more professional chairs than do ours. Chairs in clinical subjects carry with them positions of chief of a large hospital service ("clinic"). Major clinical subjects, such as medicine, surgery and pediatrics have more than one chair, often three or four, with professors occupying parallel positions and dividing teaching responsibilities among them. There are separate chairs in some subjects considered by our standards as subdivisions, such as infectious diseases, physiology and rehabilitation. The academic ladder consists of "ordinary" professors, "extraordinary" professors, docents, adjuncts, senior assistants, junior assistants and technical assistants. Only professors and docents have permanent academic tenure. The top position of ordinary professor is one obtained after many years, usually ten or more, of occupying a chair. Most chairs are now occupied by extraordinary professors, some by docents. At present, ordinary professors are mostly those who occupied higher teaching positions before the war.

The academic staff is full-time, but only in the sense of the customary 42-hour week. Most faculty members have to supplement their income by second jobs in the same manner as other members of the profession. The majority of senior faculty members carry on private practices, some very extensive ones. The European custom of patients directly consulting specialists and subspecialists is still widely prevalent in Poland and constitutes the major basis for private practice. Consequently, top faculty men are widely sought. Research activities are encouraged and the publication of papers is considered an important factor in climbing the academic ladder. Most papers are published in Polish medical journals, some abroad. There is a large number of medical journals (38) printed weekly, monthly or quarterly, which are devoted to the various special fields or are general, interdisciplinary in nature. The text

is in Polish and most carry English and Russian summaries.

Those faculty members with whom I talked appeared knowledgeable and well acquainted with present-day concepts in the various fields of medicine. Most have a fair knowledge of the English language, at least to a point of reading journals. Familiarity with English language medical literature is good, much better than before the war. Many faculty members have traveled abroad since 1956 and a fair number have had long training periods in the United States, England or Sweden. Fellowships in the western countries are received with great enthusiasm—many supported by grants from the World Health Organization and the Rockefeller Foundation—and the recipients are the envy of all colleagues.

There has been notable interest in our methods of medical education. Many faculty members were familiar with our teaching methods, even with experimental medical curricula launched recently by some of our medical schools. They recognize that the principal deficiency of medical education in Poland is the excessive number of students for the available facilities and faculties. While didactic lecturing was in the past considered the standard way of medical teaching, it is now regarded by some as a necessity, perhaps a temporary one, with an aim to approach ultimately more individual instruction modeled on our teaching.

In order to illustrate the status of academic medicine in Poland, one may present a few figures concerning the medical academy in Poland's capital and largest city. The annual report of the Warsaw Medical Academy for the year 1961-62 lists a student body of 3,839 in its four professional schools (Medicine, Pediatrics, Dentistry and Pharmacy). Medical students accounted for 2,192. The number of students graduating at the end of that year was 511, of whom 316 obtained a physician's diploma. The faculty consisted of 990 members, of whom 104 had academic tenure and 673 were of lower, auxiliary rank (adjunct or less). Fifty-one faculty members, including 16 senior members, spent part of the year abroad. The number of scientific publications for the year was 942, of which 417 were on studies of experimental nature.

Undergraduate Medical Education

Students enroll in a medical school directly after graduation from high school, usually at the age of 18, for a six-year course, which includes some of our premedical subjects: Physics, chemistry and biology. This is, of course, standard practice in European medical education. Students are selected on the basis of their high school grades and performance at a rather stiff oral and written entrance

examination. Classes are limited, the number of admissions being decided by the Minister of Health. The number varies from 200 to 300. Some 60 per cent of students are women. The number of applicants to medical schools has decreased sharply, from seven for each admission in the 1950's to two at the present time.

Scholarships provided by the government are easily available and are given to at least half of the class. Tuition at the school is free. Dormitories have been built adjacent to most medical schools but are often inadequate to accommodate all students. At least 80 per cent of students admitted to medical schools graduate; dismissals for failing grades are rare, since the faculties are encouraged by the Ministry to grade leniently. Many students seem to take advantage of this general atmosphere by studying little—only enough to obtain minimum passing grades. While the schools have their share of bright and inquisitive students, the general level is definitely lower than before the war in the estimation of some faculty members with prewar teaching experience.

The medical curriculum shows little deviation from the standard European medical course. The first year includes premedical basic subjects and anatomy. Preclinical subjects are taken up in the second year and half of the third year; and the last three and a half years are devoted largely to clinical medicine, including organized, obligatory courses in many subspecialties. New to the medical curriculum are obligatory courses in foreign languages and physical education. Furthermore, third year students are required to take a course in Marxist philosophy. The ratio of lectures to bedside clinical instruction is about one to one, showing that students have relatively little time and opportunity to spend in hospital wards with patients.

Graduate and Postgraduate Medical Education

The diploma of physician is granted to those who have completed the six-year course in a medical school and have passed all required examinations. After graduation a two-year internship is required. Internship in Poland appears to be entirely different in nature and objective than ours. Rather than consolidate medical knowledge during a year of closely supervised practical service in a teaching institution, Polish internships provide practical experience in small communities without any formal teaching. They often constitute a means of obtaining medical manpower in communities where it is needed. However, the need for practical clinical supervised teaching is now being met by formal graduate medical education, which begins after internship.

Recent graduates can choose their training to involve general medical experience or to enter specialty training. Formal training for general practitioners now involves a two-year course at an approved institution which includes rotation through four major departments (medicine, surgery, obstetrics and pediatrics) with six-month assignments in each. Specialty training consists of two steps. The first includes a three-year training period equivalent to our residency in a given discipline and provides the qualification for an examination given by the training institution, after which the candidate is certified as a "First-Degree Specialist." The second step involves another three-year training period in a specialty or subspecialty, after which a qualifying examination is given by a national board of specialists for certification of "Second-Degree Specialists." First-Degree Specialists can apply for positions as assistants in hospitals and clinics; Second-Degree Specialists can compete for positions as chief of services and for teaching positions.

During the last few years the whole concept of continuing education for physicians has been changed and reorganized. To the Medical Academy in Warsaw has been delegated the responsibility of creating a central postgraduate medical teaching unit. This was done by organizing an autonomous postgraduate division of the Academy. The division has 22 chairs in clinical specialties and subspecial-

ties, each controlling a service in a major hospital. Various subspecialties such as cardiology, hematology and gastroenterology have separate chairs. Each chair is in the charge of a professor or docent and each has several adjuncts and assistants, the number of whom is only slightly smaller than in the undergraduate division. The separation from undergraduate teaching is complete, so that no faculty member teaches both medical students and physicians.

The number of postgraduate students in each division is limited; usually it is from ten to fifteen. Physicians come to the division for a specified course, lasting from one to three months, which includes supervised ward work, seminars, group discussions, assigned library reading and refresher courses in foreign languages. Courses are fitted to specific audiences: General practitioners, first-degree specialists or second-degree specialists. Postgraduate students get full pay from their original jobs and are provided dormitory space. Some come voluntarily, others on the request of their superiors or of the district health officers. Errors in judgment and malpractice on the part of the physician is a common reason for a compulsory refresher course at the postgraduate school. The division also offers short "crash" lecture courses for those preparing for specialty examinations.

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Carotid "Thrombosis" and "Fixed Neurological Deficit"

Two Cases Surgically Treated

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■ *Chronic "fixed" neurological deficits do not appear to be entirely beyond amelioration by surgical operation even in the presence of considerable intracranial disease. Improvement in the particularly important spheres of verbal communication and mental dexterity may be anticipated in some patients. The presence of multiple vessel involvement is additional stimulus to operative intervention. Failure to carry out arteriographic examination in cases of "chronic" stroke, or relying too much on the results of such an examination as an indication of local inoperability may lead to errors in treatment. Likewise, exploration of the "occluded" carotid artery in patients with multiple vessel disease may show patent distal vessels in a worthwhile number of cases.*

THE ENTHUSIASM for surgical operation on extracranial obstructive vascular lesions has been somewhat dampened in cases of stroke with chronic fixed deficits, significant intracranial obstructive disease or complete carotid thrombosis. Many of the oft quoted sources^{1,2,3} state categorically that fixed neurological deficits are not improved by surgical operations, that rarely is it possible to restore flow after thrombosis, and that intracranial disease is a contraindication to operation. These views have led many physicians to advise against arteriography in chronic stroke, against surgical exploration with non-visualization of the internal carotid artery and against operation in patients with significant intracranial obstructive disease.

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It is the growing conviction of this author that these criteria are not necessarily entirely applicable to this disorder. The term "fixed neurological deficit," or completed stroke, has particularly come under scrutiny. In a number of cases pronounced subjective and objective improvement has been observed following revascularization procedures in patients with multiple vessel disease and with fixed deficits of three or four years' duration. This would lead one to believe that the static nature of the deficit may reflect a maximum compensatory state rather than an absolute loss of function. Particularly gratifying has been the improvement seen in the higher level functions, such as mental clarity, speech and fine coordination. These changes, which represent a gain in a particularly disabling sphere

of cerebral dysfunction, are apparent in the immediate postoperative period, and therefore cannot be attributed to the normal course of the disease. An interest in screening examinations in all potentially salvageable cases of stroke for operable extracranial disease has given the author a considerable exposure to the pitfalls of arteriography. It is my present policy to examine "thrombosed" carotid arteries in all patients having multiple vessel disease and neurological dysfunction. In a small but worthwhile proportion of cases, vessels which are patent cranially and capable of restoration of flow have been observed. Sometimes a vessel in which both retrograde and percutaneous arteriography show a "complete" carotid occlusion may be open distally. Even when the carotid artery is indeed totally occluded by thrombus, the hazard of exploration seems to me to be conscionable.

These observations make me doubt the wisdom of denying arteriography to a stroke patient who has rehabilitation potential. Retrograde aortography by the axillary route⁴ is in my experience diagnostically accurate as well as safe. Most of the major complications associated with arteriography in patients of the kind here considered appear to be related to direct puncture of the involved vessel.

Although obviously not all patients with chronic deficit will be benefited by operation on the carotid artery, I believe that prognostication as to the permanence of the deficit is open to some question, even in cases of apparent static deficit of long duration. Particularly encouraging has been the response of patients with severe multiple vessel disease. Although I do not consider the presence of intracranial disease a deterrent to operation, obviously the opportunity for dramatic relief is less in such cases. A restoration of flow may prevent further progression of intracranial thrombosis and maintain vital circulation. The situation would seem roughly analogous to that of aorto-femoral-popliteal disease with restoration of flow to the femoral level, which has proven effective.

Following are reports of two cases illustrating the foregoing concepts.

Reports of Cases

CASE 1. The patient was a 54-year-old white woman with right hemiparesis and motor aphasia following a stroke three years previously. These deficits had improved slightly following the incident, but had been quite stable for at least two years.

The patient was found to have an essentially functionless right upper extremity and rather severe motor aphasia. The blood pressure was within normal limits. Except for left carotid bruit and the

residual damage from stroke no other vascular neurological abnormality was noted. On general examination, however, clinical carcinoma of the left breast was observed. Since mastectomy was indicated and the possibility of extracranial stenosis of the left carotid artery was considered, arteriographic examination was carried out. Retrograde axillary aortographic studies showed stenosis almost completely closing the left internal carotid artery, moderate blocking of the right internal carotid artery and absence of filling of the left middle cerebral artery intracranially. Because of the critical left carotid stenosis and the possibility of thrombosis during mastectomy, it was decided to restore flow in this vessel before doing the operation on the breast. After the procedure the patient had definite improvement in speech as well as a surprising gain in motor function of the right upper extremity. As the procedure had been undertaken mainly for prophylactic purpose, the neurological improvement was particularly gratifying.

CASE 2. A 73-year-old white woman who had been in a custodial institution because of essentially total motor aphasia and right hemiparesis of four years' duration was observed in consultation. Arteriographic examination was done despite the rather dismal outlook and the chronicity of the disorder. Pronounced stenosis of the right internal carotid artery was shown, also failure of filling of the left middle cerebral and narrowing of the left anterior cerebral artery, failure of filling of the left vertebral artery and stenosis of the midportion of the right vertebral artery. Because of the generally poor outlook and the institutional state of the patient, operation was undertaken despite the apparent "wrong side" of the extracranial lesion.

Immediately after operation the patient was able to speak quite well and she became fully ambulatory. She was discharged to her home after the usual postoperative stay.

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Cystic Fibrosis

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■ *Cystic fibrosis, a disease thought to be transmitted as a recessive genetic trait, is found as a disease in about one in 1,000 to one in 10,000 births. It involves all of the exocrine glands with presenting symptoms dependent upon the extent of involvement of any group of glands. Many aspects of the disease can be corrected by substitution therapy. This applies particularly to the use of animal pancreas for the steatorrhea and salt for prevention of heat prostration. Unfortunately, the obstructive pulmonary disease with secondary bronchial infections can only be treated symptomatically by the use of mucus thinning agents, postural drainage, and antibiotics. Nevertheless, longevity can be increased and a great deal of hope offered to the families of these unfortunate children by careful supervision of their medical care.*

CYSTIC FIBROSIS has been recognized as a distinct clinical entity since the late 1930's.^{2,16} In the intervening years, it has been called a variety of names thought to be more descriptive, including *fibrocystic disease*, *mucoviscidosis* and, most recently, *diffuse exocrinopathy*. The original and still generally recognized name of cystic fibrosis was based upon the observation that certain children with steatorrhea who died from chronic lung infections had fibrosis and cystic changes in the pancreas at autopsy. Subsequently, it was shown that the mucus secretions of the body were much more viscid than usual, thus the term *mucoviscidosis*.¹⁰ The most recent proposal that the disease be called diffuse exocrinopathy⁶ comes from the demonstration that all of the exocrine glands of the body may produce secretions that are in some manner abnormal. This,

too, is still only descriptive and not likely to replace the original name of cystic fibrosis.

Etiology

Cystic fibrosis is recognized as a disease of genetic origin, believed to be transmitted as a Mendelian recessive.²² As such, the recessive gene must be conferred to the child by both parents in order for him to have the disease. There is no family history of the disease except in siblings and cousins. Reports from various clinics have indicated an incidence in siblings of one out of four. Our own verified data on 100 families indicates that 150 out of a total of 329 children were affected, an incidence of 45 per cent.

No method has yet been devised to identify the heterozygote or gene carrier. Although parents of children were at one time thought to have unusually high sweat electrolytes, subsequent studies^{1,15} have shown this not to be higher than in the general population of adults. Nor has it been possible to confirm a higher incidence of pulmonary or gastrointestinal problems in ancestors of children with

Further information, lay or medical, can be obtained by writing the National Cystic Fibrosis Research Foundation, 521 Fifth Avenue, New York 17, New York. Information regarding location of Cystic Fibrosis Centers are also available through this source.

From the Cystic Fibrosis Center, Childrens Hospital of Los Angeles and Department of Pediatrics, University of Southern California School of Medicine.

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cystic fibrosis. Studies on families of children from this clinic failed to demonstrate an incidence of such diseases greater than that seen in controls.¹²

The gene is believed to be a very common one, estimated to occur in about one out of thirty persons in the general population. This results in an observed disease frequency of about one out of every 3,600 births, although it has been variously reported as occurring in from 1:1,000 to 1:10,000.^{11,19}

It is very uncommon in some racial groups such as Negroes and Orientals. Out of a total of 321 patients seen at Childrens Hospital, only three were Negroes and none were Orientals. The disease is relatively uncommon in Latin Americans. In spite of the fact that Los Angeles has the largest Latin American population of any city north of Mexico City, there were only seven patients of Latin American origin in our series.

Symptoms and Signs

In most cases the disease is diagnosed during the first few years of life. In 130 of the 321 patients in the present study diagnosis was made when the patient was less than one year of age, and in most of the remainder by five years of age. However, three of the patients were 11 years old at the time of diagnosis, one was 14 and one was 17 (Table 1).

Although greater awareness of the disease among physicians will undoubtedly result in earlier diagnosis, severity of symptoms will continue to vary greatly from patient to patient. The child with large, bulky, greasy, foul smelling stools who fails to thrive in spite of a voracious appetite and who has chronic or recurrent pulmonary infections, presents little difficulty in identification. Such a patient is seen in Figure 1. He is thin, has a prominent abdomen and wasted buttocks. Muscle tone is poor. Intercostal retractions may be seen on inspiration and the expiratory phase may be prolonged.

Not all patients so obviously have the disease, for symptoms will depend upon the extent of involvement of the various exocrine glands of the body including sweat glands, lacrimal glands, salivary glands, pancreas, liver and mucus-secreting glands of the tracheobronchial tree and gastrointestinal tract.

TABLE 1.—Age of Children Followed at Cystic Fibrosis Center When Diagnosis Was Established.

Under 1 yr.	130
1 year	50
2 years	33
3 years	25
4 years	18
5 years-9 years	39
Over 10 yrs.	6

Sweat of most patients contains a high concentration of electrolytes. The sweat tastes salty and they cannot conserve salt under conditions of heat stress. Excessive sweating results in salt crusting, especially at the hair line of the forehead. During hot weather, heat prostration may develop with very low serum sodium and chloride values unless these electrolytes are replaced. Ten of our patients had heat prostration.

Tears and saliva also contain higher than usual concentrations of salt.⁷ Although it is not lost in sufficient quantities to cause symptoms, salivary gland enlargement as shown in Figure 2 has been



Figure 1.—Infant with loss of subcutaneous fat, protuberant abdomen, poor muscle tone and intercostal retractions.



Figure 2.—Submaxillary gland enlargement made more evident by loss of subcutaneous fat.

observed³ and was noted in 30 patients in the present study.

Reports indicate that the pancreas produces inadequate amounts of enzymes for digestion of food in about 85 per cent of patients.²⁰ Approximately the same proportion (91 per cent) of patients in this series had steatorrhea. The amount of pancreatic insufficiency is quite variable, ranging from the condition in which the stools are a little loose and foul smelling at times in a child with an average appetite and normal growth, to that in which a child with severe pancreatic insufficiency is thin and wasted in spite of a voracious appetite.

The earliest manifestation of pancreatic insufficiency is that of meconium ileus in the newborn. This was the presenting symptom in 38 cases (11 per cent) in the present series. These infants have intestinal obstruction at birth, with a distended abdomen and vomiting. If the ileum has ruptured in utero, meconium peritonitis will be present and may show up on a plain film of the abdomen as multiple areas of calcification. (Figure 3.) Intestinal atresia may result from such a rupture; therefore cystic fibrosis should be considered in all such babies.⁹ The colon is small from lack of function and can be demonstrated as a microcolon by barium enema studies (Figure 4).

Other complications of the pancreatic insufficiency with resulting abnormal stools are rectal pro-

lapse, which occurred in 56 patients (17 per cent), nutritional edema and intestinal obstruction in older children. The latter, while uncommon, has been the subject of a report from this hospital.²¹

The biliary tree is involved in some cases of cystic fibrosis. Jaundice may develop during the early months of life, probably due to inspissated bile. One infant, for example, had a bile cast of the gallbladder at the time of death. Nine children had cirrhosis and eight of the nine also showed evidence of portal hypertension. It is probable that this will be observed more often as children live for longer periods.

By far the most serious problem is that of recurrent respiratory tract infection. Although this factor is not well documented in this series, it is believed that most children with cystic fibrosis have sinusitis. Nasal polyps are not uncommon and are associated with a chronic mucoid or mucopurulent nasal discharge, often mistakenly thought to be due to allergic disease.

The most serious aspect of the disease is involvement of the lower respiratory tract. The normal child has a thin, watery blanket of mucus covering the entire tracheobronchial tree. It is constantly being renewed and swept up to the pharynx by the action of the cilia. It carries with it inhaled foreign material such as dust or bacteria. Children with cystic fibrosis appear to have a thicker, more sticky mucus which does not move as readily, thus allow-

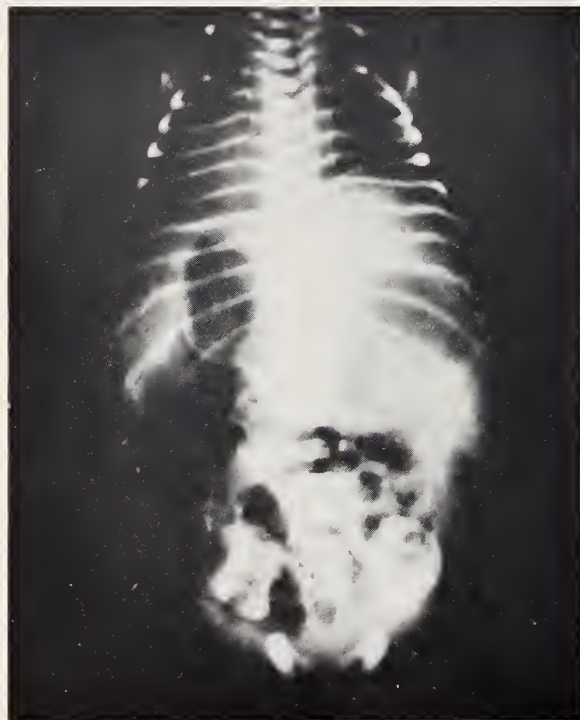


Figure 3.—Meconium ileus with rupture of the small bowel in utero followed by ileal atresia. Note calcification due to meconium peritonitis.



Figure 4.—Microcolon demonstrated by barium enema.

ing bacterial growth. Plugging of the bronchi and bronchioles results from these secretions, and the normal respiratory bacterial flora then grow more readily. Bacterial toxins produce inflammation with mucosal swelling and exudate, which in turn produces more airway obstruction. Bronchi expand on inspiration and contract on expiration, allowing air to enter more easily than it can be expired, with air trapping resulting. In time, the anterior-posterior diameter of the chest increases (Figure 5). X-ray films of the chest reveal increased radiolucency of the lungs, increased anterior-posterior diameter of the chest and bowing of the sternum (Figure 6).



Figure 5.—Lateral view of child with extensive air trapping manifest by increased AP diameter of the chest.



Figure 6.—X-ray of child with cystic fibrosis that demonstrates earliest x-ray changes—increased radiolucency of lungs with bowing of sternum, increased AP diameter of chest, and right middle lobe pneumonia.

Pneumonia develops easily. With complete obstruction of the bronchi segmental atelectasis and chronic pneumonitis develop and in x-ray films streaking up to the upper lobes may be seen. Bronchiectasis and lung abscesses follow. The cough, which at first may be dry and irritating, becomes productive, paroxysmal and exhausting. Dyspnea with intercostal and suprasternal retractions becomes more pronounced. The accessory muscles of respiration are used and the chest becomes almost fixed in the position of inspiration, with breathing primarily diaphragmatic.

The child improves as infection is brought under control. However, virus infections of a kind that often involve the lower respiratory tract (such as influenza, measles and many unidentified viruses) tend to reactivate the process again and again until the child finally dies of pulmonary insufficiency.

Cor pulmonale, manifested by edema, enlarged liver, enlarged heart with right ventricular hypertrophy and dilated neck veins, may be present in the late stages of the disease but appears to be largely associated with hypoxia. It is usually reversible if the pulmonary infection can be controlled.

Clubbing of the fingers and toes generally appears early and parallels the severity of the lung disease. It is so rare in other types of chronic lung disease in children that cystic fibrosis must be suspected when clubbing is observed.

Diagnostic Aids

If attention is drawn to a child because of chronic diarrhea, foul, greasy, bulky stools, recurrent or chronic lower respiratory tract infection, wheezing, unexplained heat prostration or meconium ileus in a newborn, certain laboratory studies are helpful in establishing the diagnosis. By far the most useful laboratory aid is a determination of the sodium or chloride content of the sweat. This procedure is rapid and causes minimal discomfort. Sweat is collected from an area of skin that has been made to sweat profusely by pilocarpine iontophoresis. It is then analyzed for salt content. Reports indicate that 98 per cent of children with cystic fibrosis have sweat chlorides in excess of 50 mEq per liter. In normal children the sweat chloride rarely reaches 50 mEq per liter. Moreover, elevated sweat chlorides are found in only a few other clinical conditions, including adrenal insufficiency, hypothyroidism and some types of ectodermal dysplasia. In our experience, only one child with cystic fibrosis had sweat chlorides below 50 mEq per liter. In two the content was between 50 and 70 mEq per liter, and 29 per cent of the patients had sweat chloride content between 70 and 100 mEq. In the remainder it was more than 100 mEq. This correlates with reports from other centers.^{1,15} The test is of limited

value after the child reaches the age of puberty, for at that time many normal persons will have sweat chloride content in excess of 50 mEq per liter. It should be pointed out that sweat chloride determinations in the average clinical laboratory are subject to many errors, both in the collection of the sweat and in the determination of the electrolyte content. The diagnosis should not be made on the basis of this single laboratory procedure.

Pancreatic insufficiency resulting in some degree of steatorrhea is present in 85 to 90 per cent of children with cystic fibrosis. A standard diagnostic procedure before the development of the sweat test was duodenal intubation and collection of pancreatic fluid which could then be analyzed for enzyme content. This procedure is now done infrequently because it is difficult and very unpleasant for the patient. It is subject to many errors and is now used only in the most unusual diagnostic problems. Lipoidal and Vitamin A absorption studies are of limited value, for they can demonstrate only that poor absorption took place at the time of the examination. A much more reliable procedure for the confirmation of steatorrhea is the measurement of fat excreted in the feces over a period of from 24 to 72 hours.⁸ The presence of excessive amounts of fat of course does not differentiate cystic fibrosis from the malabsorption syndromes, and this determination is therefore of limited value for diagnosis.

The second most useful diagnostic aid is x-ray study of the chest. Air trapping is a significant early feature of the disease and it may be noted in film showing no other abnormality. When air trapping is accompanied by a patchy peribronchial infiltrate which extends particularly into the upper lobes, it is almost pathognomonic of cystic fibrosis (Figure 7). Areas of chronic pneumonia and segmental atelectasis are common. Spontaneous development of pneumothorax must always arouse suspicion of cystic fibrosis.

Other useful x-ray studies are those of the sinuses, and evidence of sinusitis is frequently seen. X-ray studies of the gastrointestinal tract, using contrast medium, reveal puddling of the media in the small bowel (Figure 8) and a "cobblestone" appearance of the colon due to pseudopolypoid changes (Figure 9). An extensive review of x-ray findings has been published.²³

Treatment

Therapy will depend upon the patient's symptoms, which will be related to the extent of the involvement of the various exocrine glands.

Sweat Glands. Almost all patients lose abnormal amounts of salt in their sweat and an increase in dietary salt is necessary to replace it. This can usually be accomplished by allowing a child who is old

enough free use of the salt shaker. However, under conditions of heat stress, salt tablets may be necessary. If persistent vomiting should occur during a heat wave, preventing oral replacement of salt, severe hypoelectrolytemia may develop within a matter of hours. The family must be warned of this and the child brought in for intravenous infusion of salt solutions without delay.

Pancreas. Eighty-five to 90 per cent of patients with cystic fibrosis have some degree of pancreatic insufficiency. This ranges from mild steatorrhea requiring only a reduction of dietary fats, to complete absence of pancreatic enzymes, resulting in large, foul, frothy, extremely malodorous stools with oil droplets on the water. Children with fairly adequate pancreatic enzymes may have normal growth and development with good muscle tone while the latter group will be thin and wasted, have pot belly, little subcutaneous fat and poor muscle tone.

Administration of pancreatic enzymes* to the latter group usually results in decided improvement in growth and development. Muscle tone improves, subcutaneous fat is added and, in time, even the pot belly is lost. There seems to be little general advantage of one type of preparation over another. The patient's or the physician's preference appears to be an individual matter. Powder or granules sprinkled on the food or taken just before a meal

*Panteric® tablets or granules (Parke Davis Co.), Viokase® powder or tablets (Viobin Corporation), Cotazyme® capsules or powder (Organon, Inc.), Entozyme® tablets (A. H. Robins Laboratories), and Pankrotan® granules or powder (Hausmann Laboratories, St. Gallen, Switzerland).

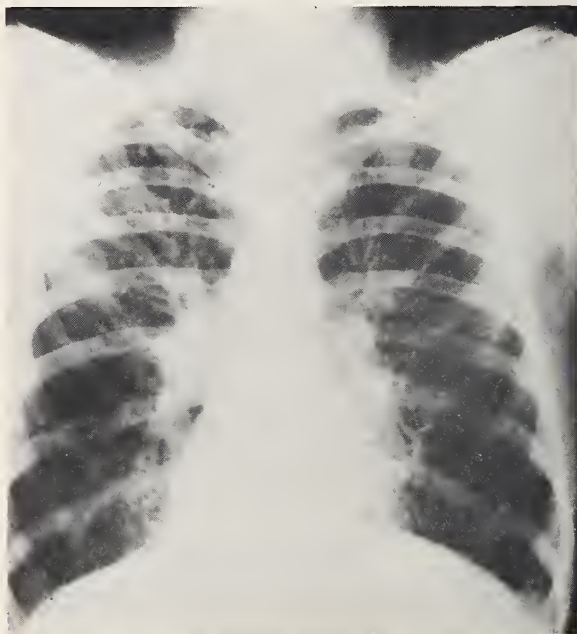


Figure 7.—X-ray of the chest showing advanced changes consisting of air trapping and perihilar infiltrates extending particularly into the upper lobes.

are necessary for infants and small children while capsules or tablets are preferred by older children. Sometimes it is necessary to try several brands before the best product is found for a particular child. Probably the most common error of treatment is failure to recommend an adequate amount. It is best to start with one-fourth teaspoonful of powder or granules per feeding for small children or one tablet or capsule per meal for older children. The dosage should be increased slowly over a period of several weeks until there is no further decrease in the frequency, volume or greasiness of stools. If the stools are still abnormal after one teaspoonful of powder or four capsules or eight tablets per feeding, then the dietary fat should be restricted by using either skim milk or 2 per cent butterfat milk, cutting the fat off meat and avoiding other fried and greasy foods.

Infants with meconium ileus require special care. After operation to remove the intestinal obstruction, a prolonged period of parenteral alimentation is often necessary. Attempts should be made to give nearly adequate calories and vitamins from the first. When food can be taken by mouth, either Nutramigen® without pancreatic enzymes added or Probana® with additional enzymes seems to be best tolerated. Vitamin K should be given for several months to prevent bleeding from hypoprothrombinemia, especially to infants who have had resection of the small bowel.

Serum proteins are often quite low because of poor absorption. In addition to this, some patients may first come to medical attention because of gen-

eralized edema due to secretion of protein into the bowel. In the present series six patients who had hypoproteinemia associated with exudative enteropathy, when they were first examined, were found to have cystic fibrosis. They improved with administration of serum albumin, high protein diet and oral pancreatic enzymes.

Rectal prolapse as a result of the voluminous stools, poor muscle tone and loss of subcutaneous fat used to be common.¹³ The condition was present in 56 patients in the series when they were first seen. It responded well to adequate diet and pancreatic enzymes, but occasionally taping of the buttocks for a few weeks was necessary. Fortunately, prolapse is seen infrequently nowadays, owing to prompt diagnosis and treatment.

Liver. Cirrhosis is not unusual, especially in older children. This may result in portal hypertension with splenomegaly, ascites, lower extremity edema, and bleeding from esophageal varices. Often considerable improvement can be effected by good diet, administration of pancreatic enzymes, control of infections in the lungs and the use of diuretics. Surgical shunting of the portal blood to the caval system may be considered for patients with sufficient respiratory reserve to tolerate the operation. Each case must be considered separately.

Tracheobronchial tree. Treatment must be tailored to the individual child. Bronchopulmonary



Figure 8.—Small bowel x-rays showing puddling of barium also noted in malabsorption syndromes.



Figure 9.—Post evacuation x-ray of barium enema. Note "cobblestone" appearance of mucosa due to pseudopolypoid changes.

infections are the most serious problems encountered and are the cause of almost all deaths. The basic principles of management of purulent infections should be followed. These consist of drainage and administration of appropriate antibiotics. During the early stages of the disease, staphylococcus is usually cultured. Although species of hemophilus are cultured infrequently, it has been shown that most patients have high antibody titers indicating frequent infections. Exacerbation of pulmonary symptoms may also be caused by the usual pathogenic pneumococcus and B streptococcus. When antibiotics have been used extensively and severe lung disease has developed, pseudomonas and other gram-negative organisms tend to predominate.

Sputum cultures should be obtained as indicated by the patient's progress and used as a guide for rational antibiotic therapy. Decision between the use of continuous antibiotic therapy and therapy of acute infections will depend upon the patient's response. When maximum response has been obtained after several weeks of antibiotic therapy, the drugs may be discontinued and the patient observed frequently for evidence of deterioration. The most useful measurement of patient response is his weight. Improvement almost invariably results in weight gain; deterioration, in weight loss. Respirations and pulse rate are useful if obtained under resting conditions but are of little value in apprehensive children. Expansion of the chest measured in circumference at the xyphoid process on forced expiration and maximal inspiration is a helpful observation in patients old enough to cooperate. A very useful tool for following the course of patients with obstructive pulmonary disease is the Wright peak flow meter, with which one can obtain peak expiratory flow rates (Figure 10). Expiratory flow rates are influenced by many factors, which limit the value of absolute figures. However, the results



Figure 10.—The Wright peak flow meter for obtaining peak expiratory flow rates.

obtained closely parallel the progress of the disease in an individual patient. Findings on auscultation of the chest and on chest x-ray examination are sometimes confusing, for both may appear to be worse when the patient is better and vice versa.

Antibiotics are generally administered by mouth. The most useful drugs are the tetracyclines, although they have the disadvantage of staining the teeth. Erythromycin and penicillin will control infection when the organisms are sensitive to them. In spite of its toxicity, chloramphenicol has proven to be a particularly valuable drug. The effects of oxycillin may be dramatic when dealing with resistant strains of staphylococcus. Drugs that cannot be administered orally but are extremely useful for treatment of pseudomonas are streptomycin, polymyxin and colymycin. Any antibiotics that can be given by injection may also be given by aerosol (Figure 11). With the exception of polymyxin and colymycin, which are used in a concentration of 4 mg per ml, they are given in a concentration of 50 to 100 mg per ml. One to two milliliters is administered by aerosol three to four times daily. As it has a broad spectrum of effectiveness, and may have serious toxic effects when given parenterally, neomycin is the antibiotic most commonly administered by aerosol.

A number of other agents including proteolytic



Figure 11.—Mask nebulizer powered by a motor driven compressor used for administering medication by aerosol.

enzymes, desoxyribonuclease, detergents and mucolytics have also been given by aerosol. They have not found wide acceptance, however, either because of toxicity or in adequate therapeutic response. The most recently introduced product of this type is N-acetylcysteine,* which has been shown to have a liquefying effect *in vitro* on thick, tenacious mucoid secretions. It has been extensively studied^{5,17,18} and found to be relatively non-toxic with side effects consisting of rhinorrhea, vomiting and nausea. In an occasional patient it may cause bronchospasm. It appears to be useful for some patients who have not responded adequately to other therapeutic measures. It has been very difficult, however, to objectively demonstrate its value. For example, 15 patients with relatively stable disease received 3 ml of 20 per cent N-acetylcysteine three times daily by aerosol and 15 others received a placebo for two months. None became worse. One of those receiving the placebos said he was having less cough, as did five of those receiving the active agent. Two patients, who were receiving the N-acetylcysteine, gained weight and one had an improvement in peak expiratory flow rate. It is believed that failure to respond is due less to lack of activity of the drug than to inability to deposit the droplets in the affected bronchi and bronchioles.

Mist tents are now being utilized more extensively. Children sleep in them throughout the night and sometimes during the day, breathing nebulized distilled water or 10 per cent propylene glycol in distilled water to thin bronchial secretions and thus facilitate removal by ciliary action and coughing. Two studies have been done in an attempt to demonstrate their effectiveness. One by Matthews¹⁴ in Cleveland showed an improvement in pulmonary function in the majority of patients after tent therapy was begun. The other, by Barbero⁴ in Philadelphia, failed to show any overall improvement in a group of patients as compared with controls after one year of mist therapy while sleeping. My own impression has been that some patients do indeed show improvement and others do not benefit. Some, including most adolescents, will discontinue the mist after a trial of several weeks.

The most satisfactory equipment for home use, in our experience, has been the MistO₂Gen† Model #HT15-5 tent, nebulizer and compressor which produces a good quantity of mist of a particle size between 0.5 and 10 microns when 10 per cent propylene glycol in distilled water is used as the nebulized material. Other equipment may work equally well but our experience has been limited. Ultra-sound nebulizers produce a large quantity of

fine mist but have not received adequate clinical trial and are expensive. Units used for aerosol therapy must produce a mist of a particle size ranging from 0.5 microns to no greater than 10 microns to assure precipitation of the droplets on the surface of the smaller bronchi and bronchioles. Most units, including croup tents utilized in hospitals, fail to do this. Their effectiveness can be increased, however, by adding a MistO₂Gen Varitrol nebulizer to the hospital croup tent. Compressed air supplied from a tank or a motor-driven compressor should be used unless the patient is cyanotic, in which case oxygen may be substituted. Many patients, especially those with some element of congestive heart failure, are more comfortable in oxygen. Some find they do well just using it at night.

Bronchodilators, expectorants and mucus-thinning agents may be given by mouth. These include ephedrine, aminophylline, saturated solution of potassium iodide and glyceryl guaiacolate. It is difficult to demonstrate the value of these agents but if an individual patient benefits, then they should be used. Potassium iodide has the disadvantage of producing goiter and acne in some patients.

Postural drainage with clapping and vibration over all segments of the lung may be very helpful. Physical therapists should be trained to carry out these procedures and to teach parents.

It is important that general pediatric care not be neglected, that the patients receive the usual immunizations, and, in particular, that measles and influenza vaccines be administered. General physical activity should be allowed and muscle building exercises encouraged. One patient who decided at 16 years of age that he was tired of being frail and weak, had become a top-notch weight lifter by age 21.

Prognosis

Life expectancy is limited by the severity of the respiratory disease although it may be increased many years by vigorous therapy. For example, before the establishment of the Cystic Fibrosis Center at Childrens Hospital of Los Angeles, 50 per cent of the children who had the disease were dead before the age of five years. After more intensive therapy was instituted, 50 per cent of those dying were over ten years of age. Early recognition of the disease with subsequent intensive therapy will thus significantly improve the outlook for many children. If the disease is severe and the infection overwhelming, however, some will die in infancy. Those recovering from meconium ileus have the same prognosis.

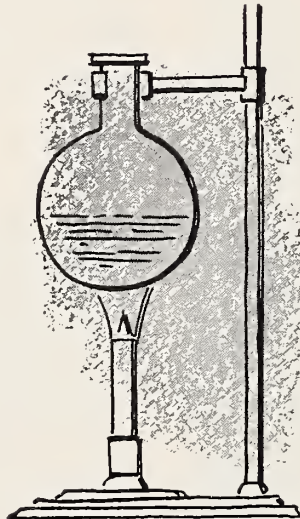
*Mucomyst manufactured by Mead Johnson Company, Evansville, Indiana.

†MistO₂Gen, Incorporated, 2711 Adeline Street, Oakland, California.

Cystic Fibrosis Center, Childrens Hospital, 4614 Sunset Boulevard, Los Angeles, California 90027.

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Intermittent Claudication

What it is and isn't

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THE DEVELOPMENT of effective direct arterial surgical techniques for obliterative atherosclerosis during the past 15 years has made more important than ever the correct interpretation of symptoms involving intermittent discomfort in the lower extremities in order that a diagnosis be made and the selection of patients for direct arterial operation properly carried out.

There remains a tendency to recognize intermittent claudication only when a patient complains of pain in one or both calf muscles on walking and examination shows an absence of the dorsalis pedis pulse. In such an instance a diagnosis of "Buerger's disease" is frequently made and treatment consists mainly of cautioning the patient to stop smoking and starting him on a trial of one of the many usually ineffective vasodilating drugs. On the other hand, a patient who complains of pain, weakness or numbness in one or both buttocks with extension into the thigh and brought on by walking is frequently still looked upon as having a "back problem" and is referred to an orthopedist or neurosurgeon for consultation. Not infrequently such a patient may have extensive x-ray studies including myelography, and sometimes may even have laminectomy before the diminished or absent common femoral pulse in the groin is recognized and a diagnosis made.

By employing standard techniques of physical diagnosis, it is possible to recognize symptomatic

stenotic or obliterative arterial disease in any area of the arterial tree and to make at least a preliminary evaluation of the condition. Of primary importance in the early recognition of such ischemic problems is the ability to elicit and recognize symptoms of intermittent claudication in obtaining the case history. The purpose of this paper is to discuss the manifestations of intermittent claudication as they correlate with the physical findings and the pathologic conditions observed at operation in a given problem involving the arterial circulation to the lower extremities.

Definition

The term claudication is derived from the Latin verb *claudicare*, to limp. Hence, intermittent claudication means intermittent limping. Gould's medical dictionary defines the term as follows: "Cramplike pains and weakness in the legs, particularly the calves; induced by walking and relieved by rest, associated with excessive smoking, vascular spasm, and arteriosclerosis." In the light of present knowledge and usage of the term, this definition is too restrictive. Certainly intermittent claudication in the preponderance of instances is caused by obliterative or stenotic atherosclerosis. However, it may also occur as a sequel to embolic phenomena, as a consequence of trauma (including surgical trauma), as part of the manifestation of the rarely seen true Buerger's disease or thromboangiitis obliterans, and occasionally as part of the symptom complex seen in vasomotor disorders producing vasospasm. Nevertheless, the common denominator producing the intermittent claudication in these diseases is a

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condition of relative muscular ischemia. Thus, claudication occurs only with muscle exercise and appears when the muscle being exercised becomes relatively ischemic. Rest of the muscle automatically lowers its arterial circulatory requirement and the discomfort disappears as the relative ischemia is relieved.

It is true that intermittent claudication is most often seen in the calf muscles but it must be remembered that the symptom can occur in any muscle or muscle group involved in lower extremity locomotion which becomes relatively ischemic during exercise. The condition, indeed, can occur in normal extremities if the exercise tolerance is exceeded. Much can be surmised as to the diagnosis and the arterial segment or segments involved by carefully noting what muscle groups are involved in claudication.

Case Presentations and Analysis

In an attempt to confirm the premise that ischemic problems in the lower extremity can be recognized and localized by history and physical examination alone, a few selected cases will be briefly presented and the findings discussed.

CASE 1. A 65-year-old man was seen in consultation with complaint of the onset of pain in the right calf muscle on walking two blocks at a normal pace. The difficulty was relatively sudden in onset and had troubled him for the preceding six months. Attempting to continue walking after onset of pain caused it to increase forcing him to halt. Only the muscles of the right calf hurt. The patient found that with onset of the pain while walking, the difficulty would invariably disappear if he halted for a few moments, after which he could again proceed two blocks or more before recurrence. He denied other symptoms. He was comfortable at rest or in walking about his shop during the day and had no trouble in the extremity at night.

On examination the patient appeared healthy and looked his stated age. Blood pressure was within normal range and no abnormalities of the heart or lungs were noted. Positive findings were limited to the lower extremities. Common femoral arterial pulses at the groins over the inguinal ligaments were normal. The right popliteal pulse was absent, the left was 2-plus (normal 4-plus). The right pedal pulses were absent. The left posterior tibial pulse was weak and the dorsalis pedis pulse absent. Oscillometry at the calves revealed a 1-1½ division needles swing on the right and a 2-3 divisions swing on the left. Elevation of the extremities revealed slight blanching in the right foot, none on the left. Dependency of the extremities after elevation revealed filling of the foot veins on the right after

35 seconds (slightly delayed) and within 20 seconds on the left.

Discussion: From the history and physical examination it can be predicted that arteriography in this patient will reveal patency in the aortoiliac segments of the arterial tree. On the right there will be complete obstruction of the femoropopliteal arterial junction with evidence of geniculate collateral formation and distal patency in the popliteal artery and portions at least of its distal branches. On the left there will be stenotic narrowing at the femoropopliteal junction with evidence of plaquing proximal and distal and occlusion of the anterior tibial artery at its orifice. The diagnosis is atherosclerotic femoropopliteal obliterative disease with complete occlusion of the right femoropopliteal arterial segment, and stenosis on the left.

CASE 2. A 67-year-old man sought consultation because of onset of pain in the right calf muscle on walking two and a half to three blocks. The condition had existed for 12 years. If he forced himself to continue walking after onset of right calf pain, the left calf became painful and pain then extended up both thighs and into the hips. At this point he was forced to stop walking because of pain. With a few minutes of rest, standing still, all pain disappeared. The patient appeared healthy and looked his stated age. Blood pressure was 165/90 mm of mercury. The heart and lungs were clear. Positive findings were limited to the arterial system of the lower extremities. The abdominal aortic pulse was easily palpable, but pulsations ended about 2 cm above the umbilicus. A very soft systolic bruit was audible over the umbilicus and over the left groin but not the right. A 1-plus pulse was palpable over the left common femoral artery and a barely detectable pulse was present at the right common femoral artery. The right lower extremity was pulseless below this level. In the lower left extremity, a barely detectable popliteal pulse, a 1-plus posterior tibial pulse and absence of dorsalis pedis pulse were noted. Oscillometry at the calves revealed no motion of the needle on the right and 1-1½ divisions of oscillation on the left. Both feet showed blanching on elevation but vein filling occurred within 20 seconds in both on dependency.

Discussion: This patient had atherosclerotic aortoiliac obliterative disease, complete on the right and nearly complete on the left. In addition, almost certainly there was femoropopliteal involvement bilaterally, worse on the right. The salient features in the history and physical examination leading to this conclusion were: Onset of pain in the right calf, then also of the left, indicating femoropopliteal involvement, worse on the right. Spread of the pain to the thighs and buttocks, worse on the right, in-

dicates aortoiliac involvement. The pulse at the right groin without a bruit arises from collateral circulation around the totally obstructed common iliac artery. The pulse at the left groin with bruit arises from the severely stenosed aortoiliac segment plus some collateral.

CASE 3. A 46-year-old postman sought consultation because in the past 13 months he had had increasing difficulty in walking his route and finally had to request assignment to work not involving walking. Increasingly since the onset of symptoms, walking resulted in a progressive feeling of tiredness and weakness in all the muscles from the hips down the thighs and calves to the feet. He was perfectly comfortable at rest or on walking no more than one or two blocks although the distress appeared much more quickly walking uphill or climbing stairs. The symptoms invariably disappeared with a few moments of rest. He denied actual pain except for occasional aching in the buttocks on walking more than a block. He described his symptoms more as a tired, weak "giving out" feeling in his lower extremities which occurred on walking. Occasionally at night he would awaken with numbness in one or both legs which he could avoid by not sleeping on his back. On driving significant distances he tended to develop numbness in the right leg and calf which he would relieve by shifting his position or by stopping and walking about. He also complained of increasing inability to obtain and maintain an erection during intercourse. In previous orthopedic and neurosurgical consultations, x-ray studies of the lumbar spine, lumbar puncture and myelography had shown no abnormalities and no sensory or motor deficits were reported.

On examination the patient appeared healthy but it was noted that the hips, thighs and calves were thin compared with torso and upper extremities. Blood pressure was 120/80 mm of mercury. The heart and lungs were clear. The abdominal aorta was palpable in the epigastrium with the pulsations ending above the level of the umbilicus. A systolic bruit was heard over the umbilicus and both groins. Pulses in both extremities were palpable but diminished to 1-1½+. Oscillometry at both calves was 1-1½-2 divisions.

Discussion: Such a patient has a true Leriche syndrome, that is, atherosclerotic occlusion of the terminal aorta. He suffers intermittent claudication of the lower one-half of his body. The ischemia is symmetrically distributed. The symptoms are weakness and tiredness of all the muscles of locomotion that are supplied by the terminal branches of the abdominal aorta. The distal tree is patent as demonstrated by the presence of distal although diminished pulses. It is to be emphasized that these symptoms

occur only with muscle exercise, with the exception of the numbness occurring occasionally while sitting or lying which probably results from occlusive pressure occurring to the collateral network in the buttocks. Such a patient is very likely to be benefited by direct arterial operation.

CASE 4. A 28-year-old man complained of severe pain in his feet on walking. He had first noted the discomfort about three and a half years before while on a hike in the mountains. He found difficulty in keeping up with his companions because of pain in his feet which forced him to rest every few minutes. The difficulty had gradually progressed. At first he thought he obtained some relief by wearing shoes a half-size larger than usual. He finally consulted an orthopedist, who prescribed special shoes with built-in arch supports. He found no real relief with the shoes and when first seen in consultation he stated that he could walk no more than a half block before being halted by pain in the feet. He described the pain as cramping or aching and said it appeared only on walking. First the balls of the feet were affected, then the arch; lately the pain had begun to extend upward into the ankle and lower calf. The pain was always relieved by resting, more rapidly if he could sit down. He lately had begun to be occasionally awakened at night by a burning numbness in the toes and forefoot on the right which he could only relieve by getting up and walking about a few moments. He said that he had smoked cigarettes since high school, averaging one package per day.

The patient appeared healthy and seemed to be in no acute distress. No abnormalities were noted on general physical examination except in the lower extremities. Common femoral and popliteal pulses were present and within normal limits. No bruits were heard over the common femoral pulses in the groins. Oscillometry at the calves revealed a 2 division needle oscillation on the right and a 3 division oscillation on the left. Posterior tibial and dorsalis pedis pulses could not be palpated in either foot. The feet showed abnormal blanching, especially of the forefoot on elevation. Filling of the veins on the dorsum of the foot appeared after 50 seconds after depending on the left and 65 seconds on the right. Dependent rubor developed in the toes and dorsum of the feet within two and a half minutes. With the extremities horizontal capillary filling after digital pressure to produce blanching at the tips of the toes was significantly delayed.

Discussion: This patient had classical Buerger's disease or thromboangiitis obliterans, which is very rare. Diagnosis of this condition can be made fairly positive from the history alone. The typical patient has claudication in the feet. He is young. He smokes. Popliteal pulses are present but oscillo-

metric readings are far below normal. Pedal pulses are absent and signs of distal ischemia are present. The patient is beginning to have rest pain in the more ischemic foot. Similar findings are seen occasionally only in young persons with diabetes but in this condition the diabetes will almost always have been long since diagnosed.

CASE 5. A 66-year-old sorority housemother was referred for consultation because of increasing numbness and weakness in the feet for the preceding three years. For the previous several months she had been under the care of a physician who told her the circulation in her lower extremities was poor and treated her with a variety of vasodilating drugs, including Papaverine, Vasodilan and Cyclospasmol, with no improvement. Her symptoms worsened and when seen she complained that walking, sometimes only four or five steps, sometimes up to one-half block, caused pain in both lower extremities, beginning in the hips and extending downward. Her ankles and legs would then become uncomfortable, stiff and numb. If she tried to continue walking she seemed to lose control of her feet and would begin to stagger. She would then have to sit down. She said that on one occasion when almost to the point of having to stop walking she stooped over to pick up her purse and then found that she could go on walking again. At the time of the consultation she was in a state of agitated depression because she could no longer perform her work satisfactorily and had been given notice of dismissal.

On examination she seemed well developed but undernourished and she appeared somewhat older than her given age. Definitely positive findings were surprisingly meager. Movement of the head was limited in all directions. Scoliosis of the thoracic spine was noted and there was winging of the scapulae. In the lower extremities there was decreased discernment of vibration from the level of the iliac crest to the toes. Knee jerks and ankle jerks were hyperactive. All arterial pulses were present and easily palpable except for the dorsalis pedis pulses which, although present, were difficult to palpate. Oscillometry at both calves was a normal 4-6 divisions. The feet were cool but capillary filling was adequate.

Discussion: Thoughtful consideration of the history in this case indicates that the symptoms cannot be due to arterial ischemia, for in that condition claudication does not occur in distances which vary from a few steps to a half block. Lower extremity ischemia does not cause staggering and almost invariably will disappear as quickly with the patient standing still as it will if the patient sits down. It is never quickly relieved by a change in posture during exercise. The dorsalis pedis pulse

is the most difficult pulse to palpate in the normal state. It is frequently absent in patients who are asymptomatic. It is more often absent than present in women who tend to have cold hands and feet. Intermittent claudication does not occur in the absence of at least a diminution of a major pulse to the symptomatic part and certainly is not seen in the presence of normal calf oscillometry.

In this case the history and the fact that no abnormalities were noted on vascular examination indicated the possibility of neurological disease. After neurosurgical consultation, x-ray films of the cervical spine demonstrated a Klippel-Feil deformity with anterior subluxation of the fourth cervical vertebra on the fifth in extension. An air myelogram demonstrated encroachment upon the cord by the lamina of the fourth vertebra with the head flexed and by the body of the fifth with the head extended. Removal of the disc between them and fusion of the fourth and fifth cervical vertebrae resulted in remarkable improvement in the patient's limitation of ambulation.

CASE 6. A 70-year-old man, a retired office worker, was seen in consultation because of pain in the right lower extremity, made worse by walking. Symptoms had begun suddenly three months previously when he awakened with a numb and tingling sensation along the lateral aspect of the right leg and foot. On standing he noted pain in the right hip and thigh which became worse with walking. The pain was relieved only if he sat or lay down for a few minutes. Over the course of the next three months the symptoms increased in severity and the left lower extremity became similarly but not as severely involved. The patient said that he was fairly comfortable in bed; pain appeared when he stood up. It became so intense in the right hip, thigh and calf and to a lesser degree in the left thigh and calf after walking a few steps that he had to sit down. He obtained no relief from standing still. In the recent past he found that he could no longer stand long enough to shave because on onset of the pain.

The patient was somewhat underweight and he walked with a slight stoop and a limp, favoring the right lower extremity. On general physical examination the following abnormalities were observed: Ankle jerks were diminished bilaterally. Vibratory sense was diminished throughout both lower extremities. There was some impairment of sensation in both lower extremities but without a definite pattern. The abdominal aorta was easily palpable but systolic bruit was heard over the umbilicus and over both groins, louder on the left. The left common femoral, popliteal and posterior pedis pulse were absent. Pulses were easily palpable and within normal limits in the right lower ex-

tremity. Oscillometry at the left calf was 2 divisions, at the right 4 to 5 divisions, compared with a normal of 5 to 7 in males. Results of elevation and dependency tests of the feet were within normal limits. The impression of the referring neurosurgeon was that the predominant difficulty was due to obliterative vascular disease.

Discussion: This patient did not exhibit true claudication. True, his lower extremity symptoms became worse with walking; but, significantly, they also became worse with merely standing. Furthermore, relief could only be obtained if he sat down or preferably lay down. Both neurological and vascular abnormalities were present, but it is to be noted that the pulse deficit was present in the less symptomatic lower extremity. Spinal myelography was suggested and a large filling defect on both sides at the level of the fourth and fifth lumbar vertebrae was seen. Subsequent laminectomy and removal of a large herniated intervertebral disc resulted in ultimate complete relief of pain. Subsequent walks up to four blocks in length caused no discomfort in either lower extremity in spite of left-sided iliac stenotic atherosclerosis.

It is obvious that this patient had stenotic aortoiliac atherosclerosis but it was not contributory to the symptoms.

CASE 7. A 53-year-old housewife was seen in consultation because of numbness, weakness and fatigue of six months' duration in both lower extremities. She said that onset had been rather sudden while she was housecleaning. She said she had had no actual pain at any time but that since the onset of the symptoms her feet had become cold and the skin of her legs bluish and somewhat mottled. She subsequently found that on walking about a half block the feet and legs would become numb and a feeling of exhaustion and muscle weakness of the entire lower half of her body developed, including the lower back, the hips and both lower extremities. She said at such times she was sure she would fall if she tried to take another step, then, after standing still for a few moments she could again walk a short distance. At home she found that she could not climb one flight of stairs without resting at least three times.

The patient said that all her adult life she had been subject to easy fatigue and dyspnea on exertion. She had been told she had "a heart murmur" but had never been given a drug for that condition. She had never noticed edema at the ankles.

On examination, percussion indicated probable

cardiac enlargement, and a soft, blowing presystolic murmur was heard over the mitral area. The abdominal aorta could be palpated in the epigastrium, but its pulsation ended about 4 cm above the umbilicus. Very weak common femoral pulses could be palpated but no bruits were heard at the umbilicus or groins. The extremities were pulseless below this level. Oscillometry at the calves revealed a slight movement of the needle—only one-quarter to one-half of a division. The lower extremities were cool, the toes were slightly cyanotic and the skin of the legs and thighs showed a bluish mottling. There was no sensory impairment and reflexes were intact.

Discussion: The history in this case would suggest neurologic involvement unless proper value is given to the fact that the patient is comfortable at rest except for coldness of the lower extremities. Furthermore, the symptoms are brought on only by exercise and are relieved by rest. Physical findings indicate complete obstruction of the terminal aorta with lower extremity circulation maintained by collateral vessels. The cardiac findings are consistent with longstanding mitral stenosis.

At operation this patient was found to have an organized clot almost certainly of embolic origin obstructing the terminal aorta and common iliac arteries. There was no evidence of significant atherosclerosis and the distal arterial tree was clear. Normal pulses were restored by aortoiliac endarterectomy and the lower extremity symptoms were completely relieved.

It is to be emphasized that claudication, especially of aortic origin, need not necessarily include actual muscle pain as part of the symptom complex. Obviously a saddle embolus to the terminal aorta does not always result in acute ischemia progressing to gangrene of the feet and legs.

Summary and Conclusions

Intermittent claudication is caused by relative ischemia of the muscles of the affected part. It appears only with exercise of such muscles and disappears with rest. Symptoms may include pain, numbness and weakness and may be confused with similar symptoms of neural or arthritic origin. The level of relative ischemia can be detected by careful palpation of pulses, auscultation for bruits and inspection, as well as attention to the location of symptoms as brought out by a careful history.

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Report of the SCIENTIFIC BOARD

Syphilis Eradication *The Task Ahead*

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TODAY, AS NEVER BEFORE in the history of man's struggle against syphilis, we have a challenge and an opportunity—the eradication of this long-time enemy of mankind. Whether we succeed in absolute eradication is not the question. It is clear that syphilis can be eliminated as a major public health problem. However, it is also clear that the combined forces of medicine and public health must undertake this task as a joint venture. By doing so, success is assured; by not doing so, failure.

Extent of the Problem

In California the resurgence of infectious syphilis is familiar to many. In 1964 over five times more cases of primary and secondary syphilis were reported than in 1955—2,148 compared with 379. Venereal diseases topped the list of the notifiable communicable diseases in California with 48,000 cases reported (Chart 1). Noteworthy are the serious communicable diseases now rarely seen. In 1964 only 40 cases of typhoid were recorded, three of poliomyelitis and no cases of plague or smallpox. However, knowledge of the existing venereal disease problem in California depends upon the reporting of diagnosed cases to local health departments. Since the venereal diseases are poorly reported, the problem reveals itself like an iceberg, showing only

a small part of its total mass; the bulk of the problem hides unreported in the community. Approximately 10 per cent of all cases of syphilis and gonorrhea diagnosed and treated by private physicians are reported and officially counted.^{4,16} Hence, we know that rather than 48,000 cases of venereal diseases, 200,000 or more actually occurred in California in 1964.

For many years the venereal diseases have been a problem of youth. Today as in previous years, about half of all infectious venereal disease (primary and secondary syphilis and gonorrhea) are reported in persons under 25 years of age. Since the low ebb of venereal disease in California in 1955, the pronounced increase has affected all ages; however in many areas it has been particularly noted in the "teen" group, and even greater in the 20-29 age group.

Reasons for Increase

Why the increase in venereal diseases? Complacency, we believe, is the major reason. Syphilis and other venereal diseases are "tolerable" diseases at present.¹³ While one case of plague or smallpox is a signal for national alarm, 48,000 cases of syphilis and gonorrhea in California and 3,000 deaths per year from syphilis in the United States cause relatively little concern. Remarkable post-war progress in the reduction of syphilis and the advent of peni-

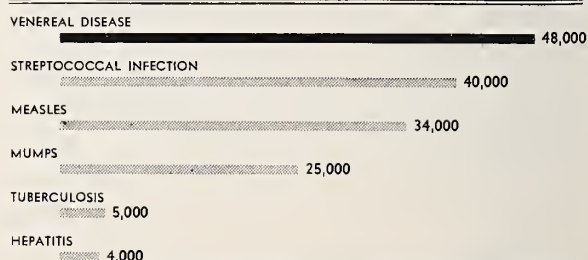


Chart 1.—California's leading communicable diseases in 1964—number of reported cases.

Prepared by the Bureau of Communicable Diseases, Division of Preventive Medical Services, California State Department of Public Health, Berkeley, for the Committee on Scientific Information, Scientific Board of the California Medical Association.

cillin caused over-confidence and complacency both by the public and by professionals. Lack of knowledge concerning venereal disease and its dangers, population increase without parallel public support for venereal disease control programs, and increasing mobility in the population have resulted in wider and more rapid spread. Recent attitudes on sexual behavior, including homosexual behavior, have no doubt contributed. During the past two years venereal disease programs in California have increased efforts to find cases.

The overall cause for the resurgence of venereal diseases, however, is that we are finding and treating neither the infectious cases nor the source-contacts and spread-contacts quickly enough.¹⁰ Today, the majority of cases are seen by private physicians rather than in public agency clinics. Since only 10 per cent of the former are reported, the epidemiologic services essential to control are not and cannot be provided.

Syphilis Eradication Plans

In 1961, a Task Force designated by the Surgeon General of the U.S. Public Health Service made six recommendations for syphilis eradication:⁷ (1) an intensive effort be made to enlist the private physician and his professional societies and associations in the control effort, (2) a program be established to insure that all laboratories (public, private, hospital and blood bank) processing blood tests for syphilis cooperate in the control effort by notifying appropriate health departments of all reactive or suggestive specimens, (3) current patient interview-investigation services be intensified and extended to cover all infectious syphilis cases, (4) a comprehensive and dynamic education program be developed for professional workers as well as for the public—the public education efforts aimed at persons in younger age groups, (5) research in the immunology of syphilis, therapy and laboratory procedure be continued and research in adolescent and young adult sex behavior greatly expanded, (6) as the infectious syphilis morbidity curve begins to drop, federal, state and local agencies must continue unstinted support of the program.

In California we agree with the methods and objectives outlined above. While we are pleased that these recommendations coincide with the basic venereal disease program in California already in progress, further discussion in this paper will restrict itself to those aspects of the program involving the physician.

Public Health Developments

Activities of local health departments will contribute significantly to the eventual elimination of

venereal disease. With assistance from the U.S. Public Health Service, 88 field epidemiologists have been made available to local health departments throughout California. They assist the local health department staff by interviewing infected patients, tracing their contacts and seeing that they reach medical attention quickly. Re-interviews and "clustering"^{*} are also carried out. Experience has shown that a second interview frequently produces contacts not obtained in the first interview. In 1962, 14,200 sex contacts to infectious venereal diseases were brought to medical attention; 5,000 were found infected and treated.

Many health departments are utilizing staff members to visit private physicians. Over 11,000 physicians were visited individually by local health department representatives in 1964. During these visits, which are brief, the venereal disease problem is discussed and support solicited for the control program.¹⁶

Joining a score of other states, California's "Laboratory Notification Regulation" became effective in April 1962. In essence this regulation calls on clinical laboratories to notify the local health officer when any laboratory finding indicates evidence suggestive of syphilis or gonorrhea. Although laboratory notification was carried out to some degree for many years (premarital and prenatal notification, for example) the effort now provides the health department with information that is not available from any other source.¹⁸ It provides a means for the local health officer to include private physicians in the venereal disease control program and provides him an entree to private physicians who are seeing patients with venereal disease in order to obtain the diagnosis. More importantly, it assures epidemiologic work on infectious cases.

It should be stressed that laboratory notification of suggestive findings is just that. Notification does not constitute a diagnosis nor relieve the physician of his important role of reporting the diagnosed case, which in turn initiates epidemiologic procedures. When a laboratory report is received by the health department it is screened on the department's confidential registry. If the titer is high and the patient a young person, an immediate telephone call ordinarily is made to the private physician. Other reports not on the registry are followed in one to three weeks by letters to the physician concerned. Sufficient time is usually allowed for the physician to make the diagnosis, but consideration is also given to preventing a spread of disease by patients in an infectious stage. Laboratory notification exemplifies the importance of collaboration in the venereal disease control program. Although many

^{*}Clustering² is examination of friends and acquaintances whom the patient believes might benefit from the examination.

laboratories are not yet participating fully, this regulation has definitely assisted local health departments in discovering the presence of unknown venereal disease cases in the community.

About one year after the regulation had been in effect, each of California's 62 health officers was asked to estimate the increased percentage of venereal disease morbidity that might be attributed to the new regulation. The greatest increase was in late latent syphilis—over half of the health officers stated they noticed significant increases. Both early syphilis and late syphilis reporting increased in a third of the counties. Thirty-one per cent of the jurisdictions believed that the regulation had resulted in an increase in the number of reported cases of gonorrhea. During the last six months of 1962, after the regulation became effective, California's reported statewide rates of infectious syphilis increased 30 per cent, the rate of non-infectious syphilis 46 per cent and the rate of gonorrhea 21 per cent compared with the first six months of 1962, before the regulation was in effect. Los Angeles City health officials believe the laboratory notification regulation is a "valuable addition to syphilis control activities,"⁵ since over 8,000 persons were brought to their attention for follow-up during 1963 by this program.

Continuing effectiveness of laboratory notification requires contacts with laboratory directors and private physicians to assure them that the health department utilizes this information confidentially and for the benefit of patients and public health.

Medical Considerations

It is significant that the first recommendation of the Task Force calls for enlistment of the private physician in the venereal disease control effort. The roles of private medicine and public health are clear-cut. The physician's primary role is diagnosis and treatment. The role of the health department is performance of epidemiologic functions—the interview and investigation. The physician must always be on the alert for signs and symptoms of syphilis and gonorrhea,³ discarding the old stereotype that the venereal disease patient is from the underprivileged neighborhood on the "wrong side of the tracks." Likely the physician will also find venereal disease in the youngster with a large allowance and a good car. He must also constantly bear in mind that the majority of cases of venereal diseases are not "typical." In fact, most persons with syphilis or gonorrhea are not aware of signs or symptoms (with the single exception of penile gonorrhea). Frequently the only way patients learn of their infection is by referral as a contact of someone else who is infected.

There are other considerations. One of these is homosexuality.⁹ Throughout the world we hear of homosexual implications in the spread of venereal disease. To a significant degree, the amount of venereal disease spread through homosexual contacts which comes to medical treatment depends upon medical awareness, the degree of interview and investigation skills and the thoroughness of medical and laboratory examinations.¹ In the homosexual male, asymptomatic infections and obscure lesions in both syphilis and gonorrhea are the rule, not the exception.¹¹ Furthermore, the homosexual individual is not identifiable by appearance, mannerism or marital status.

Since medical signs are usually hidden, in order to control venereal diseases we should adhere to the following precepts: (1) Routine thorough physical examination for every patient in whom venereal disease is suspected. This should include examination of all body orifices and mucocutaneous junctions and darkfield examination of exudate from all lesions. (2) Appropriate laboratory tests should be done routinely.¹⁴ (3) Epidemiologic treatment should be administered in full dosage to sex contacts of known infectious cases. (4) Interviews of patients with diagnosed disease in order to get the names of contacts should be carefully, tactfully and confidentially carried out by health department interviewers.

Since private physicians treat most of the patients who have venereal disease, they represent the focal point in the control program and obviously must constitute part of the epidemiologic team. Although we cannot expect him to provide the interviewing service that is time-consuming and a specific skill in itself, the physician must initiate the request for epidemiologic services in each case. Ideally, physicians should telephone the local health department to arrange for interview of patients with infectious syphilis, preferably at the moment of diagnosis. Experience indicates that the success of epidemiologic follow-up is better when the physician introduces his patient to the health department interviewer. Additionally, interviewing results are best when performed in the office of the private physician.¹⁰ The epidemiologic interview averages 45 minutes per case. Special skills are needed to obtain the names of all the contacts from each person with infectious syphilis. This is particularly true with reference to homosexual contacts.

Not only must the health department provide the interviewing service in infectious cases but, with exception of the spouse, they obviously must perform field investigations necessary to locate contacts and other reservoirs of infection in the community. Health workers often communicate pertinent information concerning contacts in distant cities confi-

dentially by *telephone*. Local or out-of-state contacts can be located, examined and treated in a matter of hours, quickly completing the epidemiologic services.

Epidemiologic treatment is paramount to the control of venereal diseases.⁸ In venereal disease work epidemiologic treatment is defined as treatment of persons who have had sexual contact with patients who have infectious disease. The indications for epidemiologic treatment stem both from public health and clinical considerations. Coupled with a thorough physical examination and the submission of specimens for appropriate laboratory tests, epidemiologic treatment should be given to all male and female venereal disease contacts (this will include the homosexual) at the initial visit.⁶ Treatment should be given in full dosages, as for a case of the disease.¹² When this is done the infection will not develop and disease cannot spread to intimate contacts before signs and symptoms appear in the patient. The long incubation period of syphilis and the relative frequency of obscure lesions are factors that increase the indication for epidemiologic treatment. The degree of promiscuity of some patients is of added significance. Some patients may have a dozen contacts before clinical signs of infection are obvious.

For treatment of primary, secondary or latent syphilis any penicillin schedule utilizing injections which assure a blood level of 0.03 units per milliliter of blood for a period of ten days is satisfactory.¹⁷ A schedule of 600,000 units of aqueous procaine penicillin injected daily for eight to ten days is frequently utilized. When less frequent injections are desired, penicillin in oil with 2 per cent aluminum monosterate (PAM) may be used, administering 600,000 units of PAM three times a week for six injections. Benzathine penicillin G, 4.8 million units total, may be administered as 2.4 million units, 1.2 in each buttock) at seven-day intervals. For late syphilis, a total of 10.8 million units of any penicillin product administered in a manner which maintains a four-week blood level may be utilized. For syphilis therapy of penicillin-sensitive patients, 30 to 40 grams of an appropriate oral antibiotic given over a period of ten to fourteen days is considered adequate.

For therapy of gonorrhea, a very high blood level should be maintained at least two days—longer if clinical judgment indicates. Administration of 1.8 million to 2.4 million units of aqueous procaine penicillin or PAM (in one dose) will increase the percentage of cures. Streptomycin (1 to 2 gms), tetracyclines, erythromycin and sulfonamides are alternate antibiotics for utilization when penicillin resistance or penicillin sensitivity is encountered in gonorrhea therapy.¹⁴

Summary

The private physician is the focal point in stopping the ever increasing incidence of venereal disease which affects our youth. Syphilis eradication hinges on close teamwork by private medicine and public health. California's "laboratory notification regulation" enables the laboratory to participate.

Proper physical examination of venereal disease contacts and suspects, routine consideration of homosexuality, skillful confidential interviews, epidemiologic treatment and adequate treatment are essential components for the successful management of each patient and paramount for the prevention of disease spread.

Public health departments now provide physicians with specially trained, competent interviewers and investigators for the time-consuming, confidential task of finding sources of infection. Judicious use of the telephone by physicians and health departments assures quick and proper action.

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CASE REPORTS

Quinidine-Induced Thrombocytopenic Purpura

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THROMBOCYTOPENIA as an idiosyncratic response may occur with a variety of medications.¹⁶ Quinidine has been implicated most commonly but fewer than 60 cases of quinidine purpura have been reported. Observations on three cases seen during the past year are presented to illustrate the interesting facets of this disorder. Once the diagnosis of drug purpura was suspected in these patients, utilization of the clot retraction test promptly established the identity of the offending agent.

Reports of Cases

CASE 1. A 79-year-old Caucasian woman was admitted to Harbor General Hospital December 5, 1962, with a complaint of intermittent episodes of "racy heart." She had been treated for several years for chronic congestive heart failure with digoxin, chlorothiazides and occasional injections of meraluride. She had angina pectoris and a history of three previous myocardial infarctions. One month before admission she was treated for a urinary tract

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infection with nitrofurantoin (Furadantin®) and a mild exfoliative dermatitis developed which cleared with cessation of therapy.

The patient complained several times of transient episodes of tachycardia, for which quinidine sulfate, 0.2 gm every six hours, was prescribed. Six days later the patient noted a generalized rash, most pronounced on the lower extremities. On examination, an extensive petechial eruption of the skin and mucous membranes and a 1 cm hemorrhagic bulla of the tongue were noted. However, there was no evidence of external loss of blood. The spleen was not palpable. The prothrombin time was 20 seconds or 44 per cent of normal, and the bleeding time was 14 minutes. Quinidine was discontinued the following day when the platelet count was 30,000 per cu mm. No new petechiae appeared and the platelet count rose spontaneously to 158,000 per cu mm by the fifth day (Chart 1). The bone marrow was examined at the nadir of thrombocytopenia and an adequate number of morphologically normal megakaryocytes was present. The white blood cell count, hemoglobin content and hematocrit remained within normal limits. The patient had no known previous exposure to quinidine. The pertinent clinical data are summarized in Table 1.

QUINIDINE-INDUCED THROMBOCYTOPENIC PURPURA

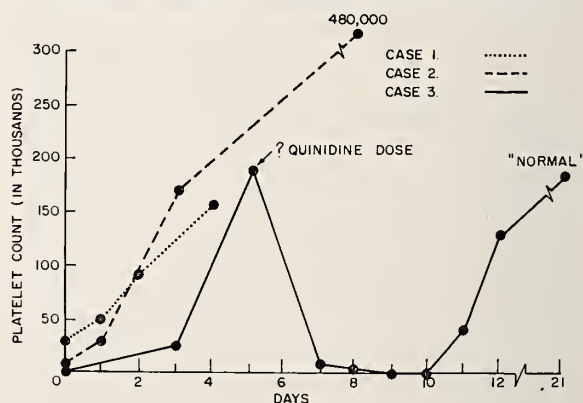


Chart 1.—Graph of course of platelet counts in the three patients after known discontinuance of quinidine in Cases 1 and 2 and presumably in Case 3.

TABLE 1.—Summary of Clinical Data in Three Cases of Quinidine-Induced Thrombocytopenic Purpura

Case	Sex and Age	Thrombocytopenic Purpura				Hematological Recovery	Treated with Steroids	Other Drugs Restored
		Previous Quinidine Use	Time from Exposure to Clinical Signs	Additional Drugs	Time for Cessation of Bleeding			
1.	F 79	No	6 days	Yes	No bleeding*	5 days	No	Platelets unchanged
2.	M 73	Yes	1 day	Yes	2 days	3 days	No	Platelets unchanged
3.	F 82	Yes	?	Yes	4 days	5 days	Yes	Platelets unchanged

* Purpura present, but no evidence of external loss of blood.

CASE 2. A 73-year-old Caucasian man was admitted to Harbor General Hospital on April 9, 1963, with rectal bleeding, epistaxis, generalized purpura and complaints of dizziness, headache and abdominal pain. He said he had had a 65-pound weight loss during the preceding year and had had atrial fibrillation intermittently during that time. Quinidine had been prescribed ten months previously for arrhythmia, and the patient had taken the drug a month preceding and again two weeks preceding admission to hospital. He recalled that, each time, he had had a transient rash on his arms, minimal rectal bleeding, myalgia, cramps and abdominal pain. Self-treatment with quinidine after another attack of atrial fibrillation was followed by the appearance of the symptoms and signs that led to admission to hospital.

The blood pressure was 120 mm of mercury systolic and 80 diastolic; the pulse rate was 96 and regular. The patient appeared pale and apprehensive. An extensive petechial eruption involved the skin, the mucous membranes and gums and the conjunctivae. There were hemorrhages in the fundi. Profuse rectal bleeding and microscopic hematuria were noted. The liver edge was felt 5 cm below the right costal margin. The spleen was not palpable. There was evidence of mild congestive heart failure. Bleeding time was greater than 30 minutes, clotting time 9½ minutes, and prothrombin time 20 seconds or 44 per cent of normal. The platelet count was 11,000 per cu mm.

From the history, drug purpura was suspected. Further questioning elicited that in addition to quinidine, the patient occasionally took tablets containing acetylsalicylic acid, phenacetin and caffeine, codeine, barbiturates and tranquilizers and was receiving digitoxin daily. All drugs except the latter were discontinued. Bleeding continued for two days and the patient required a total of five units of fresh, whole blood. The platelet count was 170,000 per cu mm on the third day, and it rose to 480,000 by the ninth day after admission (Chart 1). The pertinent clinical data are summarized in Table 1. On later investigation the patient was found to be thyrotoxic. Therapy with I^{131} was administered and thereafter there were no episodes of atrial fibrillation.

CASE 3. The patient, an 82-year-old Caucasian woman, was first noted to have gingival bleeding on July 19, 1963. No platelets were seen on examination of a peripheral blood smear. A transfusion of one unit of fresh whole blood was given. The platelet count improved spontaneously (Chart 1), but on July 26 gingival bleeding, gross hematuria and areas of ecchymosis developed and the patient was again admitted to hospital.

On admission, she was confused and unable to recall what medicines she had been taking. However, it was known that she had been taking quinidine irregularly since February 5, 1963, for intermittent atrial fibrillation. In addition, she had used several other drugs in the recent past, including meprobamate (Equanil®), prochlorperazine and isopropamide (Combid® spansule), monalium hydrate (Riopan®), oxyphenyclimine and hydroxyzine (Enarax®), and acetylsalicylic acid.

On physical examination numerous petechiae and areas of ecchymosis, conjunctival hemorrhages and gingival bleeding were noted. The liver and spleen were not palpable.

The hemoglobin was 11.9 gm per 100 ml. Leukocytes numbered 8,900 per cu mm with a normal differential, and the platelet count was less than 5,000 per cu mm.

Prednisone (20 mg every eight hours) was started on July 28 because of persistent gingival bleeding and gross hematuria with clots. On July 30, the urine was grossly clear and there was no evidence of bleeding orally or in the skin. The following day the dose of prednisone was decreased, and the next day the patient was discharged to her home without medications. The clot retraction test was positive for quinidine. The course of platelet counts in this case is outlined in Chart 1 and some of the pertinent clinical features are summarized in Table 1. The patient died September 9, 1963, of cerebral embolism.

Clot Retraction Studies

The clot retraction test as described by Schen and Rabinovitz¹⁰ was performed in each of the three cases here reported. A 1:2,000 solution of the suspected drugs was prepared in normal saline.

Two milliliters of blood freshly drawn from the patient were added to test tubes containing 0.2 ml of the 1:2,000 solution of quinidine or other drugs as described above and to 0.2 ml of normal saline solution for control. The tubes were inverted several times to mix the contents and then were placed upright in a rack. They were examined at 4 and 24 hours. Failure of clot retraction is a positive result of the test.¹⁰ Should no retraction occur in any tube, including the control, due to absence of platelets during the acute phase, a modification of this test, using added normal platelets as described by Weintraub and coworkers¹⁵ may be employed.

Each of the patients was taking more than one drug and each was investigated by means of the clot retraction test while thrombocytopenic. Quinine, a stereo-isomer of quinidine, was arbitrarily included among the drugs tested in Case 1. In all three instances retraction did not occur in the mixture of quinidine and blood alone, but it did occur in all other mixtures, as manifested by the expression of serum from the clot.

The patients in Cases 1 and 2 were investigated again by the clot retraction test 15 months and 11 months, respectively, after the thrombocytopenic episodes. In each patient, the clot was definitely less "tight" and there was less visible serum in the tube with quinidine than in the control tube with saline solution.

Thrombocyte Agglutination Tests

Further investigation was done in Cases 1 and 2 with the thrombocyte agglutination test. Mixtures of the patient's plasma and normal platelets with a 1:2,000 solution of drugs or with normal saline solution for control were incubated at 37°C for one hour and examined for platelet agglutination. Demonstrable agglutination occurred in each case only in the presence of quinidine.

Discussion

Ackroyd, in his studies of allyl-isopropyl-acetyl-urea (Sedormid®) purpura, was the first to report extensively on thrombocytopenia as a hypersensitivity phenomenon. Since then many other drugs have been incriminated as causing thrombocytopenic purpura.¹⁶ Quinidine is one of the more commonly implicated agents. Because of its use for cardiac arrhythmias, persons in the older age group are most often affected. Far more women than men are affected: the reported ratios are 6:1 to 7:1, for which there is no adequate explanation.⁷ Hence the fact that one of the patients in the three cases here reported was a man is of some interest.

Drug-induced thrombocytopenia should be considered in any case of petechial eruption and/or diffuse bleeding, whether or not a history of drug ingestion is obtained. The patient may complain of dizziness, weakness, pruritus, headache, abdominal cramps and nausea, or be symptom-free.^{7,10} Questioning may reveal a temporal relationship between drug ingestion and a fleeting skin "rash" at some time in the past. Once drug purpura is suspected, all medicines not vitally needed should be withheld.

The hemoglobin and hematocrit are usually normal unless bleeding has been severe. Hemolytic anemia due to quinidine is extremely rare. There are usually no changes in the leukocyte count or in the cell differential. If generalized purpura is present, a Rumpel-Leede test is of no value, and, in fact, should not be performed. The bone marrow may be normal or reveal evidence of decreased thrombocyte production.⁷ The clotting time is unaffected while the bleeding time and prothrombin time are usually prolonged.

Complete clinical and hematological recovery usually occurs within seven days after the inciting drug has been discontinued. The use of steroids in the treatment of drug purpura has been advocated by some investigators.¹⁵ Rapid spontaneous recovery, however, renders assessment of their value difficult. Drug-induced thrombocytopenia most resembles idiopathic thrombocytopenic purpura in its acute onset and clinical manifestations, but usually differs in its incidence at an older age and in its short clinical course.

Although a case of hydrochlorothiazide purpura has been reported in which the clot retraction test gave negative results,⁶ most reports^{3,8,15} and the experience cited here indicate that the drug responsible for the thrombocytopenia can be determined by the clot retraction test. Several methods of delineation of the cause of purpura in addition to those described have been suggested. Passive transfer reactions⁵ and patch tests^{1,8} have been reported as helpful, and *in vivo* provocative test doses have been advocated as an aid to identification. Shulman¹³ demonstrated that he could safely quantitate a test dose with predictable results. For general use, however, the uncertainty of the dose-response curve would seem to make this practice hazardous. It is generally felt that as compared with other methods the clot retraction test offers simplicity, speed, specificity and clinical applicability.

The thrombocytopenia which occurs in susceptible persons upon exposure to quinidine is generally felt to be an antigen-antibody reaction, but the exact mechanism is disputed. Ackroyd⁴ presented evidence for the formation of a complete antigen by union of the drug (Sedormid®) as a

happen with platelets, stimulating antibody formation and resulting in agglutination of platelets, or lysis in the presence of complement. The platelet lysis which occurs during coagulation in sensitive persons and results in failure of clot retraction was shown to be due to some plasma factor or "thrombocytolysin" incited by Sedormid® and not due to any peculiarity of platelets themselves.³ Ackroyd¹ espoused antigenic similarity between platelets, capillary endothelium, and megakaryocytes to explain bleeding phenomena and decrease or alteration in megakaryocytes occasionally observed. Capillary fragility resulting in purpura was felt to be the result of this same "thrombocytolysin" acting on capillary endothelial cells, distinct from its effect on platelets.²

Larson⁹ suggested that quinidine plus a serum factor produced an anti-platelet factor even in the absence of platelets and that the latter was the "shock tissue" of the antibody reaction. Along the same line, Shulman^{11,12} proposed that a drug (quinidine) acting as a hapten combines with some soluble, noncellular, macromolecule to form a stable antigen against which high-affinity antibodies are developed. The antibody then forms a complex with the antigenic moiety and is adsorbed by the platelets nonspecifically, rendering them more susceptible to the physiological process of destruction or sequestration. The platelets thus have no role in antigenicity.¹⁴ In his study, there was no evidence for antigenic similarity between platelets, endothelium, and megakaryocytes. He affirmed the necessity of complement for the reaction to occur. The extreme sensitivity of the reaction was attested by the finding that platelet diminution occurred at levels of quinidine too low to be detected by complement-fixation, and the latter is ten times as sensitive an indicator of antibody activity as the clot retraction or platelet agglutination tests.^{12,13}

From the prognostic standpoint, Shulman indicated that the rate of recovery is related to the severity and the duration of the thrombocytopenia. That drug purpura occurs in only a relatively few persons has been explained on the basis of laxity of union between the hapten and the cell in forming an antigen, some persons being "hyper-reactors" to relatively weak antigenic stimuli.⁸

Summary

Three cases of quinidine-induced thrombocytopenia demonstrating the interesting features of this

disorder are presented. These cases affirmed that rapid, spontaneous recovery takes place on discontinuance of the provocative drug. The diagnostic value of the simple clot retraction test was re-emphasized and the cases herein gave opportunity for review of pathogenetic factors. Drug purpura is probably more common than suspected and should be considered in the differential diagnosis of any case of purpura.

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Hepatic and Renal Lesions

In a Case of Tetracycline Toxicity During Long-Term Estrogen Therapy After Orchiectomy

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RECENTLY Schultz and his associates⁷ reported six cases of fatal liver disease in pregnant women following the intravenous administration of tetracycline in high dosage. Although the authors ascribed the fatal outcome in each instance to this therapy, a somewhat similar clinico-pathologic picture in pregnant women was described by Sheehan before the introduction of the tetracycline group of drugs.⁹ The purpose of this paper is to record a case occurring in a man receiving long-term estrogen therapy after orchiectomy that bears a pronounced similarity to the cases reported by Schultz and his associates.

Report of a Case

A 66-year-old Caucasian man was admitted to the San Francisco Veterans Administration Hospital on February 15, 1964, with complaint of pain in the right upper quadrant of the abdomen. The patient had been in satisfactory health until, four months before admission he noted the onset of intermittent postprandial abdominal pain in the right upper quadrant. On the day before admission the pain became severe and unremitting and was associated with chills and fever.

A diagnosis of well differentiated adenocarcinoma of the prostate was made at this hospital in March, 1962. Orchiectomy was performed and maintenance doses of stilbesterol, 5 mg per day, were begun. The patient had continued to take this drug until the present admission.

Pertinent physical findings were limited to mod-

erate rigidity of the abdominal wall and tenderness of the epigastrium and right upper quadrant. No organs or masses were palpable and bowel sounds were described as normal. The temperature was 100.4°F, the pulse rate 100 and the blood pressure 150/75 mm of mercury. The patient weighed 52 kg. The hematocrit was 33 per cent and leukocytes numbered 14,400 per cu mm—87 per cent neutrophils. Urinalysis showed a trace of protein. The bilirubin was 2.3 mg per 100 ml direct and 3.8 mg per 100 ml total. The amylase was 448 Somogyi units. Creatinine content was 1.5 mg and the urea nitrogen 28 mg per 100 ml. Serum electrolytes were within normal limits. X-ray films of the chest and abdomen showed no abnormality. An intravenous cholangiogram did not visualize the biliary tract.

The patient was thought to have acute and chronic cholecystitis with cholelithiasis and obstruction of the common bile duct. After 48 hours of conservative therapy, bilirubin and amylase levels had returned to normal. However, because of persistent fever, the patient was believed to have cholangitis and intravenous administration of tetracycline was begun (Table 1). Over the next seven days the patient became afebrile but continued to complain of mild right upper quadrant pain.

On the tenth hospital day sudden tachypnea and an elevation of the temperature to 103°F were noted. The blood pressure was 130/70 mm of mercury. Leukocytes numbered 28,900, with 96 per cent neutrophils. The bilirubin was 1.4 mg per 100 ml direct and 2.3 mg per 100 ml total. Prothrombin time was 36 per cent. Creatinine content was 5.4 mg and the urea nitrogen 66 mg per 100 ml. Sodium content was 132 mEq per liter; potassium, 9.3 mEq; chloride, 111 mEq; carbon dioxide, 3.0 mEq. pH of arterial blood was 7.03.

Over the next eight hours, 396 mEq of sodium bicarbonate was administered. Subsequently, the carbon dioxide was 19 and the potassium 6.6 mEq per liter. Because of the patient's sudden deterioration, emergency laparotomy was performed under local anesthesia. Brief exploration revealed no gross abnormalities other than what was felt to be a re-

TABLE 1.—Daily Dosage of Tetracycline Given to a Castrated Man Who Had Received Estrogen Therapy Over a Long Period

Date	Grams	Mg per kg of Body Weight	Given
February 17	2	38	Intravenously
February 18	2	38	Intravenously
February 19	3	58	Intravenously
February 20	3	58	Intravenously
February 21	3	58	Intravenously
February 22	1	19	Intramuscularly
February 23	1	19	Intramuscularly
February 24	2.25	43	Intramuscularly

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solving acute cholecystitis. Cholecystostomy was performed and a biopsy specimen of the liver was removed. After operation it was difficult to maintain the patient's blood pressure and despite vasopressor therapy he died 12 hours later. At the time of death the bilirubin content was 2.1 mg per 100 ml direct and 2.9 mg total, and the prothrombin content was 14 per cent. The creatinine was 6.3 mg and the urea nitrogen 93 mg per 100 ml.

At autopsy two small non-obstructing gallstones were found within the common bile duct at the ampulla. The common duct was dilated to 2 cm in circumference. The liver, which was soft and yellowish tan, weighed 1,920 gm. The cut surface appeared greasy and of a normal lobular pattern. The right kidney weighed 160 gm and the left 190 gm. Cut surfaces showed a peculiar yellow pallor, more pronounced in the medullae.

On microscopic examination of the liver acute cholangiitis with a neutrophilic exudate within the portal cholangiolas was noted. There was also a panlobular change consisting of multiple fine vacuoles within the parenchymal cells (Figure 1). An oil red O stain confirmed the lipid nature of these vacuoles (Figure 2). Necrosis, although present, was limited to only an occasional hepatic parenchymal cell. Bile stasis and parenchymal inflammation were absent. In sections of the kidneys no evidence of underlying chronic disease was seen. A striking finding was extensive fine fatty vacuolization of the tubular epithelium. Occasional glomeruli were con-

gested and contained fibrin thrombi. Also noted were moderate but focal hyaline droplet degeneration as well as actual necrosis of tubular epithelium. On examination of multiple sections of the prostate gland no evidence of residual adenocarcinoma was seen.

Discussion

The present case bears many similarities to the cases reported by Schultz and associates⁷ and later cases reported by other investigators.^{7,4-6} In addition, Dowling and Lepper² recently reported four cases, three occurring in women, who were not pregnant, and one in a four-year-old boy. In almost all these reported cases, infection of some sort led to parenteral administration of large doses of tetracycline, with acidosis, azotemia and terminal shock ensuing. At necropsy a characteristic panlobular, fine fatty vacuolization of hepatic cells was noted, associated in some cases with fatty vacuolization of the renal tubular epithelium.

Since similar although sublobular fatty vacuolization of the liver may occur in pregnancy *per se*,^{9,10} this would seem to cast some doubt on the causal relationship between the hepatic changes and the parenteral administration of excessive doses of tetracycline. The case herein reported, occurring in a castrated man who was receiving continuous estrogen therapy, is all the more interesting in that it tends to support the emphasis

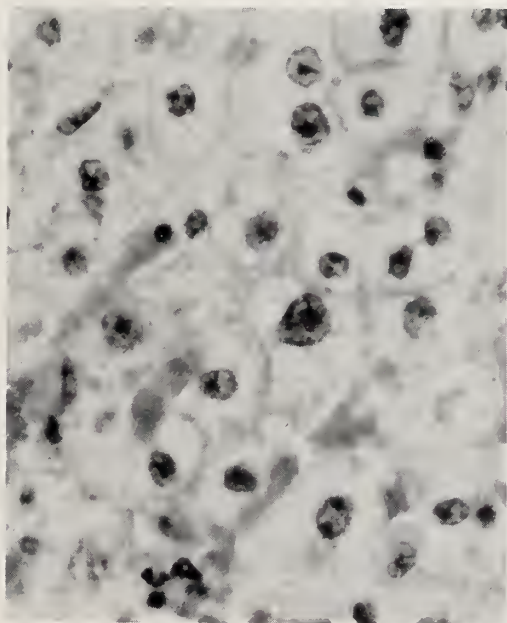


Figure 1.—High power detail of the liver showing the characteristic fine fatty vacuolization of hepatic cells. Similar changes were present in the majority of renal tubular epithelial cells. (Hematoxylin and eosin, $\times 625$.)

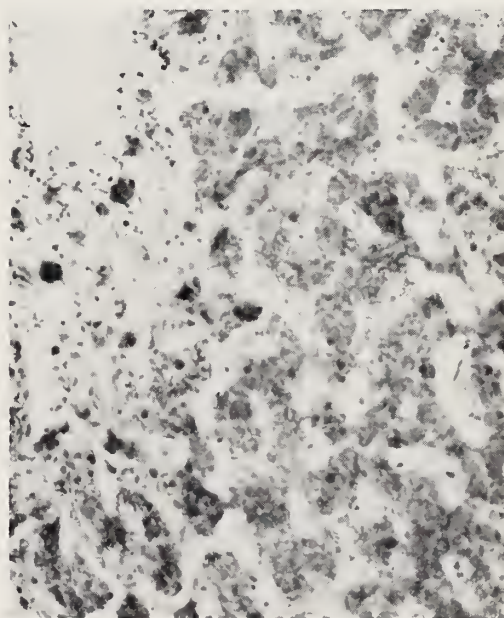


Figure 2.—The lipid nature of the vacuoles is demonstrated. A portion of a portal triad is visible at the upper left. (Oil red O, $\times 150$.)

placed by Schultz and his associates upon the role tetracycline plays in the hepatic changes.

Recently Searcy and coworkers⁸ demonstrated depression of beta lipoprotein levels in patients during short-term tetracycline infusions. This could conceivably be related to the known effect of interference with protein synthesis by this drug.^{3,11} The pathologic changes observed in the liver and kidneys may be a morphologic expression of this phenomenon. Although Schultz and coworkers stressed the hepatic alterations occurring in their patients, it is felt that the renal changes observed in the present case are also noteworthy and may indeed be responsible for a significant portion of the clinical and biochemical abnormalities described.

The extensive clinical studies of Shils¹¹ on the metabolic effects of tetracycline have shown that this agent exerts an "anti-anabolic" effect. The apparent enhancement of this effect by estrogen (Shils' Case A4, Table 6), and, conversely, the suppression of this effect by androgen, leads us to suggest that the toxic effects of tetracycline, as manifested in these patients may be more pronounced in women, especially during gestation. The present case tends to support this concept. However, further clinical and experimental studies will be necessary to elucidate this relationship, if indeed it truly exists.

Summary

Hepatic and renal lesions observed at necropsy in a castrated man who had received estrogen therapy over a long period were believed to be secondary to the parenteral administration of tetracycline. It is postulated that they may represent a morphologic expression of the interference with protein synthesis on the part of this drug. An important modifying influence by gonadal hormones is suggested.

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Abdominal Aortic Aneurysm with Rupture into the Inferior Vena Cava

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THE SPONTANEOUS RUPTURE of an arteriosclerotic abdominal aortic aneurysm into the inferior vena cava is considered a rare condition although in the past few years reports have been appearing more frequently in the literature.^{2,3,4,6} Eleven cases of this condition, successfully treated surgically, were recently reported by Beall and associates, who reviewed the world literature at that time.² Two additional cases were reported by Darling and Linton³ and this paper is concerned with what is believed to be the 14th surgically treated case with survival.

Report of a Case

A 62-year-old white man was admitted to the Los Angeles County General Hospital Unit II on June 11, 1963, with the complaint of lower abdominal pain radiating to both testes and both flanks for approximately 12 hours. The patient said that for two months previously he had been aware of an abdominal "pulsation." In 1960 he had had suprapubic prostatectomy.

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On physical examination, facial rubor was noted. The blood pressure was 110/80 mm of mercury, respirations were 28 per minute and the pulse rate 130. A grade II apical systolic murmur was present. The lungs were clear. An abdominal pulsatile mass, tender to palpation, was clearly visible in the region of the umbilicus. On auscultation a systolic bruit was heard in the mass. The liver and spleen were not enlarged. An old midline infraumbilical scar was present. Both femoral pulses were present but only the right popliteal pulse could be felt. The dorsal pedis pulses were absent bilaterally. In both lower extremities, which were mottled and cold, venous distention and slight edema were noted.

The packed cell volume was 40 per cent. Leukocytes numbered 8,500 per cu mm—76 per cent segmented forms, 4 per cent stabs, 17 per cent lymphocytes, 2 per cent basophils and 1 per cent eosinophils. The blood urea nitrogen was 24 mg per 100 ml.

With the patient under general endotracheal anesthesia, a long left paramedian rectus muscle-splitting incision was made in the abdomen. The small bowel and colon were lifted through the abdominal opening and a large pulsatile aneurysmal mass extending from just below the renal arteries down to the bifurcation of the aorta was observed. The distal duodenum was adherent to the upper portion of the mass. The aorta just distal to the renal arteries and then both common iliac arteries were cross-clamped and the aneurysmal sac was opened. On evacuation of a large clot, profuse bleeding occurred through the opening in the sac, and on digital exploration a large aorta-caval fistula, approximately 4 to 5 cm long was felt between the aortic aneurysm and the proximal inferior vena cava. The distal portion of the left common iliac vein was also involved in the communication. When attempts to close the opening in the cava and iliac vein were unsuccessful, these structures were clamped above and below the fistula and were oversewn, a portion of the aneurysmal wall being utilized in the repair. The major portion of the aortic aneurysm, including the area in contact with the duodenum, and a section of the vena cava were then resected and an aortic bifurcation graft of crimped Teflon® was placed between the proximal abdominal aorta and the common iliac arteries. The posterior parietal peritoneum was not closed. The abdominal wound was closed in layers and retention sutures were placed. The patient received 7,000 ml of blood during the procedure.

Postoperatively, the patient remained in fair condition but pronounced oliguria developed. In the first 12 hours after the operation only 230 ml of urine had been collected and the hourly output had dropped to about 10 ml. The blood urea nitrogen

was 43 mg per 100 ml. At this time the patient was given 200 ml of a 25 per cent solution of mannitol (50 gm) mixed with 300 ml of 5 per cent dextrose in water intravenously over a two-hour period. Profuse diuresis ensued and the output of urine in the next eight hours was 725 ml. Once the episode of transient renal failure was past, the patient did well. He was eating and walking by the third day. On the ninth day the blood urea nitrogen was 20 mg per 100 ml and the patient was without complaints. Preparations were made for discharge the following morning.

Next day, however, during the morning ward rounds, both of the lower extremities were observed to be cold and mottled. There was no palpable left femoral pulse and the pulse on the right side was diminished. Thrombotic occlusion of the graft was suspected but at operation the Teflon graft was found to be working well without evidence of occlusion. Groin incisions were made bilaterally and complete occlusion of the superficial left femoral artery was noted. The superficial right femoral artery was patent but the pulse was diminished. Direct arteriography confirmed the conditions observed surgically and also revealed narrowing of the right popliteal artery. A long incision was made in the left superficial femoral artery and a large clot was extracted. The opening was closed with 6-0 arterial silk. The groin incisions and the abdomen were then closed.

Following this operation the patient again had a transient episode of oliguria which again responded to an infusion of mannitol. The left foot remained somewhat cooler than his right. Heparin and antibiotics were administered and the patient gradually improved. Except for a mild wound infection in the left groin, recovery was excellent. The patient was discharged from the hospital on July 23, 1963.

Left foot pain associated with increasing arterial insufficiency necessitated readmitting the patient to the hospital on August 10, 1963. The left groin incision had healed and the left femoral artery could be palpated easily. The left popliteal pulse, however, was not palpable and there was blackening of the fourth and fifth toes. Because of these irreversible ischemic changes, left mid-thigh amputation was performed on August 20, 1963.

Three days before the amputation an increasing pulsatile mass 4 cm in diameter was palpable in the left groin. This was felt to be a pseudo-aneurysm of the left arm of the graft and it was not explored at the time of the amputation for fear of interrupting blood supply to the left thigh stump. The intent was to explore the left groin after primary healing had occurred. Late in the evening of August 21, 1963, the aneurysmal mass in the left groin ruptured, creating a large dissecting hematoma over the en-

tire left flank. The patient was in shock. Blood transfusions were started, the left groin incision was reopened. A large dissecting pseudo-aneurysm was found originating at the site of the previous arteriotomy along the left superficial femoral artery. The pseudo-aneurysm had dissected subcutaneously over the entire left anterior abdomen and flank. The left common iliac artery was surgically divided and both the proximal and the distal ends were oversewn. The clots from the dissecting hematoma were removed, subcutaneous drains were placed in the left flank and the left groin incision was closed. The procedure was extraperitoneal.

Following this fourth operation the patient responded well. Good arterial supply remained in the left thigh to allow healing of the stump. Discharged on September 20, 1963, the patient then remained in good health.

Comments

The reported mortality from ruptured abdominal aortic aneurysm following operation varies from 34 per cent in one series² to 74 per cent in another.⁹ Although aneurysmectomy, prosthesis and venorrhaphy of the vena cava are the preferred treatment in this condition,³ in the present case the anatomical distortion and hemorrhage made vena caval division and ligation necessary. No hypotension ascribable to this procedure was observed.

Certainly one of the known causes for the high death rate in this condition is the development of acute renal failure. Nanson⁷ showed that clamping of the abdominal aorta distal to the renal arteries can cause tubular necrosis. Nesbit⁸ mentioned that the mortality rate of acute renal failure following prolonged operation approaches 80 to 90 per cent. Barry and associates¹ suggested that acute functional renal failure occurs in all patients undergoing aneurysmectomy.

Both Nesbit and Barry observed that the use of a mannitol infusion early enough can often reverse the process of renal shutdown. This was demonstrated quite dramatically in the present case following the first two operations. Mannitol acts as an osmotic diuretic and is also now thought to increase renal blood flow. Moore⁵ recently published a concise review of this subject.

Summary

A case of an abdominal aortic aneurysm with rupture into the inferior vena cava is reported. It is believed to be the fourteenth case successfully treated surgically. Mannitol was used postoperatively for acute renal failure.

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Long Term Local Hypothermia of Gangrenous Extremity

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PATIENTS with gangrenous extremities due to vascular insufficiency are in general in poor physiological condition due to age and the advanced state of the arteriosclerotic disease process. Many have diabetes in addition to the widespread arteriosclerosis.

Dehydration, infection and toxemia from the infection about the gangrenous extremity are usual complications. Not infrequently a thromboembolic

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phenomenon may be the result of a silent myocardial infarction.

In such situations, a stop-gap measure to gain time until the associated or superimposed pathological changes can be corrected or improved will greatly minimize the risk of major surgical procedure and make the operative amputation possible.

Local hypothermia is an excellent means to gain this needed time in which to prepare the patient for amputation. Most gratifying of all is the almost immediate relief from pain when cold is applied.

Rather than regular ice for local hypothermia,³ we have found dry ice or an electrical hypothermia unit such as that used in cardiovascular procedures to be neater and easier.

First wrapping the gangrenous extremity in sheet wadding, we pack crushed dry ice about it. Then the packed area is wrapped in a rubber sheet and finally in woolen blankets. It is essential that the dry ice does not extend up to or beyond the point of proposed surgical amputation, for it is not intended as an anesthetic agent for surgical amputation as it has been used by other investigators.^{1,2} If the extremity is a leg, the wrapping of blankets must be thick enough to prevent the cold from affecting the opposite extremity.

If freezing is felt to be required for an extended period, a hypothermia unit may be used as in the case presented below. In applying the hypothermia unit to the extremity, the latter is snugly fitted with the extremity sleeves of the unit over the leg wrapped in sheet wadding. This is then wrapped well in woolen blankets. The unit is maintained at 30°F and it is checked from time to time at first to make sure it is stabilized at the desired temperature. Further adjustment then is unnecessary. With this method there is no necessity for cumbersome replacement of ice or dressings. And since the extremity is frozen solid, application of a tourniquet beforehand is not required. This prevents the distal engorgement experienced with regular ice cooling.

The longest duration of local hypothermia reported by Moretz and coworkers³ was 24 days. In the case presented below, hypothermia was continued for 11 weeks. The feasibility of local hypothermia for so long a time was pondered, but circumstances of the occasion made it a necessity.

The patient had no ill effects from the extended freezing of the extremity. The body temperature remained normal once the toxic effects of the gangrenous extremity were controlled. The appetite and sense of wellbeing improved and remained good throughout the freezing period.

There was no necessity for frequent changes of dressings or replenishing of ice. The hypothermia

unit was maintained at 30°F and at that temperature the extremity was frozen solid; at any higher temperature there was a tendency for the extremity to thaw and become soft with necrotic degeneration.

The following cases illustrate the use of the hypothermia machine for an extended period.

Reports of Cases

CASE 1. A 57-year-old white man with spastic quadriplegia had sudden onset of pain in the left lower extremity with coldness and cyanotic discoloration from the knee down. Iliofemoral thromboembolism seemed the probable cause. The patient refused operation and the extremity deteriorated rapidly. An electrocardiogram revealed posterolateral myocardial infarction, the probable origin of the embolism.

With rapid deterioration of the extremity, deeper cyanosis and bleb formations, the pain became unbearable. Although the patient's consent for amputation was later obtained, the procedure was out of the question because of the fresh myocardial infarction. Hypothermia was decided upon but because of the anticipation of long term treatment necessitated by the infarction, use of a hypothermia unit rather than dry ice packing seemed advisable. During the time hypothermia was maintained, the patient's cardiac status was followed weekly with electrocardiograms. About the time he was felt to have recovered sufficiently for surgical amputation, new changes in the electrocardiograms were suggestive of extension of the infarction. Finally after 11 weeks of local hypothermia, with improvement in the cardiac condition, an uneventful above-the-knee amputation was carried out with spinal anesthesia. The stump healed without difficulty and the patient did well thereafter.

In three additional cases local hypothermia was maintained by the dry ice technique for from five to 21 days.

CASE 2. Symptoms compatible with a saddle embolus developed in a 50-year-old white woman with diabetes while she was in a coma for two days. Both legs were packed in dry ice for 12 days and bilateral above-the-knee amputation under spinal anesthesia then was carried out. The wound healed without difficulty.

CASE 3. Gangrene and severe pain developed in the right foot of a 67-year-old woman who had diabetes and hypertensive cardiovascular disease and right hemiplegia and aphasia due to cerebrovascular accident. The leg was kept frozen with dry ice for five days before operation. The patient died of cardiac arrest on the operating table. At

postmortem examination a recent myocardial infarction was noted. (A preoperative evaluation for infarction, for which operation had been postponed previously, had been negative.)

CASE 4. Symptoms and findings suggestive of right ileofemoral arterial occlusion developed suddenly in a 76-year-old white woman with hypertensive cardiovascular disease who was in a semi-comatose condition. The leg was placed in dry ice for 21 days while aggressive therapy was carried out to improve her general condition. Before the day of anticipated operation, a cough and fever developed and the operation was canceled. The patient died. At autopsy acute congestive heart failure, arteriosclerotic cardiovascular disease and right ileofemoral artery thrombosis were noted.

Summary

Local hypothermia was maintained in gangrenous extremities in four patients while preparation was made for operation. A hypothermia unit was

used in one case for 11 weeks before successful amputation and in three others dry ice was used for periods of from five to 21 days.

Among the benefits of hypothermia of the affected limb is almost immediate and then continuous relief of pain while systemic complications of the gangrenous condition and other concomitant disease are being overcome to prepare the patient for amputation.

3820 Crenshaw Boulevard, Los Angeles, California 90028 (Hayashida).

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For information on preparation of
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California
Medicine



EDITORIAL

The Eradication of Syphilis

IN CALIFORNIA as elsewhere, the need for the reporting of communicable diseases is supported by law. Perhaps no better example of the importance of reporting can be found than in the venereal disease program. The importance of physician assistance in the syphilis eradication program that is now under way in California and in the nation at large is dealt with elsewhere in this issue (page 306). Not only does reporting enable us to know the real magnitude of the problem, but, more important, reporting initiates confidential interviews and case-finding activities by public health workers. A requirement that laboratories notify public health authorities of findings suggestive of venereal disease enables the laboratory to join public health workers and physicians in finding new infectious cases or in returning persons with reactivated disease to treatment. If not reported, the "source" cases and the cases that are spread from the source are unlikely to be located and brought to treatment immediately. Immediate information is the *sine qua non* of preventing rampant spread of infection to others.

Vastly improved teamwork between private physicians and local health departments is essential for the eradication of syphilis. Paradoxically, although diagnostic tools and technical ability are better than ever and treatment is easier and more effective, syphilis is spreading. Hidden infections are a major factor in this paradox. While private physicians diagnose and treat large numbers of patients with infectious venereal disease, all too often the epidemi-

ologic work that is necessary if the "source" cases and their exposed contacts are to be brought to examination and treatment never gets under way simply because the physician does not make the required report. Without violating a confidence, health departments have greatly increased the effectiveness of their services of interviewing and reinterviewing patients with infectious venereal disease in order to find all persons with whom the patients have had sexual contact and induce them to have examination and treatment. Because of the complexity of technique and the time required, health departments request that all private physicians ask them to perform this specialized service whenever primary, secondary or early latent syphilis is diagnosed. Health departments never carry out this service without the physician's request or permission. Homosexual exposure accounts for an appreciable proportion of current cases of infectious syphilis—a special problem which calls for skilled interviewing.

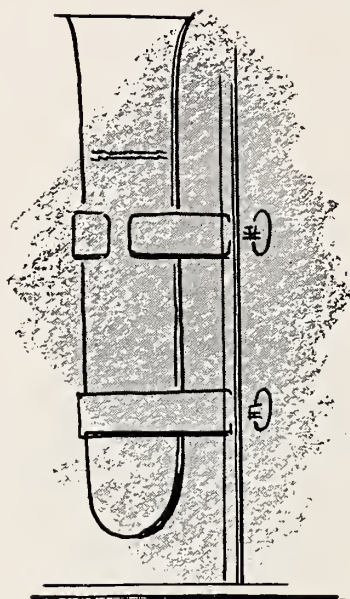
For infectious syphilis, physicians should telephone the local health department to ask that an interviewer be sent to talk with the patient while he is still in the office. Whenever feasible this interview for the purpose of tracing contacts should be initiated before treatment is started.

Another crucial problem in the eradication of syphilis lies in the medical realm—reticence on the part of physicians to give "epidemiologic" treatment to persons who are known to have had contact with infectious venereal disease at the time of the diagnostic examination. Yet with the simplicity and certainty of treatment now available, there is no valid reason to withhold treatment until the symptoms and signs of a dangerous disease develop. In this connection it should be noted that in many instances the only indication of disease is the development of a positive reaction to a blood test, which may not occur until weeks after infection. And in the interim there is always a great possibility of more spread.

How can the private physician fulfill his responsibilities in the eradication of syphilis? The following

summarizes the principal areas of responsibility: (1) Have a high index of suspicion, include syphilis in the differential diagnosis, and obtain the latest information on diagnosis and treatment. (2) Cooperate closely with the local health department to see that the epidemiologic consultation services are obtained for each patient with infectious syphilis, in addition to performing the usual diagnostic and treatment services for the patient. Call the health department to obtain a trained interviewer for the patient at the moment syphilis at any stage is diagnosed. (3) Ask the health department for a report, as soon as the epidemiologic service is completed

on patients who have been interviewed, saying how many contacts were elicited and how many new cases were discovered. (4) At the time of the diagnostic examination, provide treatment in full dosage for all persons who have had contact with persons known to have infectious syphilis. (5) Assist in forming a venereal disease committee of the local medical society. Coordinate the program for control with health department representatives. (6) Utilize every appropriate opportunity to present venereal disease information to parents and children. Give active support to programs for inclusion of the subject of venereal disease in the curriculum of schools.





California Medical Association

James C. MacLaggan, M.D.

CMA President-Elect

DOCTOR JAMES C. MACLAGGAN, the new President-Elect of the California Medical Association, has reached that office after a great deal of experience which he managed to compress into a relatively few years of devoted service to this organization.

Twelve years ago he began service on the Council of the San Diego County Medical Society and since that time he has served in jobs and on committees that have extended his interest and his knowledge into virtually every function of his county medical society and the CMA. He was a delegate to the CMA House of Delegates in the years 1955-1957 and in the latter year was also president of the San Diego County Medical Society.

Unquestionably Doctor MacLaggan is best known over the state for the furtherance of the "Guiding

Principles for Physician-Hospital Relationships." This committee, which he heads, has already surveyed 160 hospitals in all parts of California.

Some measure of the man and of his range of knowledge in the workings of the organization which he will head next year may be obtained from a listing of the committees not already mentioned on which he has served and the posts he has held over the last few years:

California Medical Association Council 1957 to present.

Chairman, CMA-CHA Liaison Committee 1959 to present.

Chairman, Commission on Community Health 1947-1960.

Chairman, Committee on Allied Health Agencies 1957-1960.

Chairman, ad hoc committee to improve Kerr-Mills Implementation 1964.

Chairman, Commission on Public Agencies 1960 to present.

Chairman, Committee on State Medical Services 1960-1964.

Chairman, Committee on Aging 1963-1964.

CMA representative (consultant) to Hospital Advisory Council and Hospital Advisory Board 1960 to present.

Member Crippled Childrens' Services Advisory Committee 1957 to present.

Chairman, subcommittee on new conditions 1959 to present.

Member Advisory Committee on Viral Diseases Department of Public Health 1959 to present.

He received his A.B. degree from Stanford University in 1939 and his doctorate in medicine from Stanford School of Medicine in 1943.

After his training in pediatrics at San Francisco County General Hospital and three years of service in the U.S. Navy, he began pediatric practice in San Diego in 1946. The father of eight children, he has a large private and personal practice of his specialty right in his own home.

Doctor MacLaggan's record of service in the principles of the California Medical Association strongly recommend him to the high office to which he now has been elected.



JAMES C. MACLAGGAN, M.D.

Council Meeting Minutes

Tentative Draft: Minutes of the 508th Meeting of the Council, San Francisco, Hyatt House, February 27, 1965.

The meeting was called to order by Chairman Anderson in the Hyatt House, San Francisco International Airport, on Saturday, February 27, 1965, at 9:30 a.m.

Roll Call

Present were President Doyle, President-Elect Teall, Speaker Quinn, Vice-Speaker Telford, Secretary Hosmer, Editor Dwight L. Wilbur and Councilors MacLaggan, Wilson, Todd, Goel, Bullock, O'Connor, Ham, Rogers, R. S. Wilbur, Miller, Watts, Fenlon, Kay, Anderson, Dozier, Grunigen, Cosen-tino and Shaw; ex-officio, Samuel R. Sherman.

Absent for cause, Councilors Taw, Maguire, Murray and Kaiser.

A quorum present and acting.

Present by invitation were Messrs. Hunton, Thomas, Clancy, Collins, Whelan, Klutch, Clark, Moreillon, Downing, Edwards and Bowman and Mrs. Redfern of CMA staff; Mr. Howard Hassard, legal counsel; Messrs. Read, Salisbury, Putnam and Brown of the Public Health League of California; component society executives Scheuber of Alameda-Contra Costa, Geisert of Kern, Lingerfelt of Fresno, Addington of Forty First, Baker of Los Angeles, Blankfort of Marin, Colvin of Monterey, Bannister of Orange, Dochterman of Sacramento, Donmyer of San Bernardino, Nute of San Diego, Neick of San Francisco, Wood of San Mateo, Donovan and Pearce of Santa Clara, Brown and York of Sonoma, Marvin of Santa Barbara and Bruce of Tulare; Mr. Robert Garrick, consultant; Doctor T. Eric Reynolds and Messrs. Paolini, O'Dea, Babb, Nyron and Wahlberg of California Physicians' Service; Doctor Malcolm Merrill, state director of public health; Mr. Jack Wedemeyer, director, and Doctor Lester McDonald, medical director of the State department of Social Welfare; Doctor Richard A. Young, State Department of Rehabilitation; Doctor Robert Hewitt, State Department of Mental Hygiene; Doctors William O. Reinhardt, Dan O. Kilroy, Stuart Knox, George Herzog and others.

1. Minutes for Approval

Minutes of the 507th meeting of the Council, held January 17, 1965, were presented and minor changes made in the tentative form. As amended, these minutes were approved.

2. Membership

(a) A report of membership as of February 24, 1965, was presented and ordered filed.

(b) On motion duly made and seconded, 21 applicants were voted Associate Membership. These were:

Bernard L. Diamond, Frederick M. Hebert, Alameda-Contra Costa County; Leon O. Desimone, Nona Wyatt Gilbert, John Chao-Chun Hsu, Clinton Albert Johnson, Sanford Kronenberg, Clark Richardson Miller, Catherine G. Pearson, Arthur K. Salberg, Jack Ramler Scoles, Geraldine Anne Stramski, Raymond L. Teplitz, Shirley T. Whiteman, Henry F. Wilkinson, Los Angeles County; Madge A. Jacks, San Luis Obispo County; Lillian Rachlin, San Mateo County; Albert Jenke, Harree D. Siler, William A. Winn, Tulare County; John Fred Sheel, Ventura County.

(c) On motion duly made and seconded in each instance, 13 members were voted Retired Membership. These were:

Lawrence E. Brown, Alameda-Contra Costa County; Thomas E. Betenson, Raymond L. Jeffery, George Howard Quillen, Los Angeles County; Richard Hamer, Napa County; Harry J. Powers, San Bernardino County; Albert Ickstadt, Jr., Delbert H. Werden, San Diego County; Edmund P. Von Gehren, San Francisco County; Harold L. Graham, Kristian Johnsen, Santa Clara County; Ruth Anderson, Ventura County; Arthur J. Priester, Ventura County.

(d) On motion duly made and seconded, three members were voted reductions of dues for reasons of prolonged illness or postgraduate study.

3. Commission on Public Agencies

Councilor MacLaggan, chairman, presented the commission's recommendation to endorse the efforts of the State Department of Public Health to improve the care of patients in hospitals and nursing homes by non-physician personnel by adding language to Section 1411 of the Health & Safety Code.

ACTION: Motion defeated.

Doctor MacLaggan also reported that the Hospital Survey Committee had recently completed surveys of 34 hospitals, including 17 in Los Angeles County.

Doctor MacLaggan also presented a letter from a member of the Council objecting to the require-

ment that all staff members of a hospital sign a statement of agreement to abide by the Guiding Principles for Physician-Hospital Relations in order for the hospital to secure approval by the survey team.

ACTION: Voted to defer action until Councilor Taw, author of the letter, could be present.

4. *Report of the President*

President Doyle reported on a number of meetings he had attended in the past month, including meetings of several branches of the Los Angeles County Medical Association, several component medical societies, a hospital dedication, Audio-Digest Foundation and the special meeting of the House of Delegates of the American Medical Association, and a meeting of Trustees of California Hospital Association.

Chairman Anderson reported that the Beverly Hills Chamber of Commerce had recently named Doctor Doyle as Man of the Year in recognition of his community interest and activities beyond the call of duty. The Council extended a rising round of applause for this honor.

5. *Report of the President-Elect*

President-Elect Teall reported on the various meetings he had attended in the past month and gave a detailed report on the results of the AMA House of Delegates meeting in Chicago.

6. *Committee on Committees*

Doctor Teall, chairman, presented the committee's recommendation that a bylaw amendment be prepared to specify the term of office for all commission members, except those on the Judicial Commission and the Scientific Board, as running for one year.

ACTION: Approved in principle the setting of term of office at one year for all commission members except Judicial Commission and Scientific Board; staff authorized to prepare a bylaw amendment to accomplish this.

Doctor Teall presented a list of nominees for appointment to commissions and committees and asked Council approval for submittal to the House of Delegates.

ACTION: Nominations of Committee on Committees for members of commissions and committees approved for submittal to House of Delegates.

7. *Medical School Deans*

Doctor William O. Reinhardt, dean of University of California School of Medicine, expressed thanks to the Council for its support of all medical schools and for its committee activities in furtherance of medical education.

8. *State Department of Public Health*

Doctor Malcolm Merrill, State Director of Public Health, reported that the Army is planning to reopen Fort Ord for the basic training of recruits on April 1 following its closure for this type of training last fall. He outlined various steps taken as precautions against a recurrence of the meningococcal meningitis epidemic which caused the discontinuance of basic training and stated that a continuing scientific advisory group, to include physicians in the area, would be established.

Doctor Merrill also reported that reductions in the department's budget proposed by the state Legislative Analyst, would seriously handicap the department's program. It was announced that the Commission on Public Agencies was studying the proposed budget reductions and would meet in the near future to provide assistance as indicated.

ACTION: Voted to express apprehension over the proposed reductions in the budget of the State Department of Public Health as endangering the health of California, to request the Commission on Public Agencies and Emergency Action Committee to make a detailed study of the proposed reductions and to authorize these bodies to appear before the appropriate legislative committees considering the budget.

9. *State Department of Employment*

Chairman Anderson distributed a statement outlining results of a meeting with medical representatives of the State Department of Employment which will discontinue any attempt to purchase medical examinations on the basis of competitive bids.

10. *State Department of Social Welfare*

Mr. Jack Wedemeyer, Director, reported that proposed changes in federal laws affecting the health care of welfare recipients and those under MAA would limit the present administrative flexibility of his department and that under these circumstances, pending enactment of federal legislation, his department could consider only modest administrative changes in existing programs.

Mr. Wedemeyer also discussed the proposed reduction in the department budget by the Legislative Analyst and pointed to areas where such proposals would limit the possibility of providing health care under prepayment systems.

11. *State Department of Mental Hygiene*

Doctor Robert Hewitt, deputy director of the department, expressed thanks to the Association for its surveys by Committee on Mental Health teams of state hospitals and day care centers. He also reported that proposed reductions in the department budget would result in closing one state hospital,

contrary to department policy to provide care for the mentally ill as near to the local level as possible.

12. *State Department of Rehabilitation*

Doctor Richard A. Young, medical director, reported that proposed reductions in state budget allocations had not affected his department and that current programs were being continued.

13. *Medical Executives Conference*

Mr. Everett Bannister, chairman, reported on the February 26 meeting of the conference, which included discussions of proposed legislation for the aging, computer handling of dues billing and other subjects.

14. *Mental Health*

Doctor Eugene Crum of Los Angeles County presented a request from the Los Angeles County Medical Association for action to remove from the Short-Doyle Act amendments which have removed from local mental health directors the power to veto of state regulations. This subject was discussed by Doctor Stuart Knox, chairman of the Committee on Mental Health, and by Doctor Richard Hewitt of the Department of Mental Hygiene.

ACTION: Voted to request Committee on Legislation to initiate and support legislation which would return to the California Conference of Local Mental Health Directors the responsibility, with veto power, for the policies of the Short-Doyle program.

15. *Committee on Legislation*

Doctor Dan O. Kilroy, chairman, reported for the committee on a number of bills before the State Legislature and requested instructions on several bills where policy determinations were needed. Mr. Putnam reported on a proposal that all health insurance plans be placed under the supervision of the insurance commissioner and a 2.35 per cent gross premiums tax imposed. Mr. Read reported on the activities of the "Blue Ribbon Commission" which has been studying all aspects of the laws governing industrial accidents.

ACTION: Several bills were subjected to vote, as follows:

SB 374 from the 1963 session, to provide that the state pay usual and customary fees for all medical services purchased by it—voted to request committee to have bill reintroduced.

AB 305—to allow governmental hospitals to employ resident physicians for as long as 26 months without their applying for California licensure.—voted to oppose.

AB 792—to require all hospitals to accept emergency cases regardless of ability to pay. Voted that

while CMA is firmly in support of the provision of emergency medical care in all areas but that in certain areas it is more feasible to select certain hospitals for expert emergency care, that it is not practical for hospitals to attempt to duplicate such services, and that efforts be made to establish such selected hospitals in all areas and publicize these choices.

AB 219—to delete requirements prohibiting the advertising or display of contraceptive materials—voted to approve.

16. *Finance Committee*

Councilor Miller presented for the committee a proposal that the proposed budget for 1965-1966 be approved in its present form for presentation to the House of Delegates. He also reported that the committee had approved the appropriation of \$7,500 additional funds, if needed, for the furtherance of the present campaign in support of the provision of medical care for the aging under programs using voluntary prepayment mechanisms.

ACTION: Voted to approve the budget as presented for presentation to House of Delegates.

ACTION: Voted appropriation of \$7,500 additional funds, if needed, to continue program of support for health care of the aging through voluntary prepayment mechanisms. Unanimous vote noted.

17. *Bureau of Research and Planning*

Doctor Samuel R. Sherman, chairman, reported that a study of the receipt of professional services by welfare recipients showed that while physicians have been dissatisfied with the level of fees paid by the state for attending welfare patients, they have continued to provide services. He requested authority to distribute copies of the study in several areas.

ACTION: Voted that copies of this study be sent to all component societies, to members of the House of Delegates, to interested individuals and to members of the State Legislature.

ACTION: Voted that executive vice president and staff of California Physicians' Service be commended for providing computer services to make possible the completion of this study in a brief period and to commend participating physicians and the bureau staff.

Doctor Sherman further reported on a meeting held by the bureau and members of the Committee on the Role of Medicine in Society with representatives of closed-panel groups which was felt to be most informative and constructive.

Discussion was held on the question of specifying in the bylaws the functions of the bureau, espe-

cially in the field of delineating the planning phase of operations.

ACTION: Voted to request staff to prepare a by-law amendment to establish both the research and the planning functions of the Bureau of Research & Planning.

18. *Liaison Committee to State Bar*

Mr. Whelan reported that the committee, meeting with its counterpart from the State Bar, recommended that a statewide code of interprofessional conduct be developed, using as a base the codes already in operation in several counties.

ACTION: Voted authority for committee to develop a statewide code of interprofessional conduct for physicians and attorneys.

19. *Committee on Paramedical Personnel*

The committee's report included a set of guidelines in response to resolutions 3-64 and 67-64 and requested approval.

ACTION: Guidelines of the Committee on Paramedical Personnel voted approval.

20. *Ad Hoc Committee to Hospital Planning Groups*

Mr. Thomas reported on the committee's request for approval of a delineation of committee duties in the fields of assisting in the voluntary effort in hospital planning, in cooperating with representatives of the California Hospital Association, in stimulating component society activities and in cooperating with a state planning committee, when and if created by legislative action.

ACTION: Committee duties approved on basis of functions outlined in this report.

21. *Ad Hoc Committee on Council Format*

Councilor Cosentino, chairman, reported that the committee requested the Council to oppose the passage of Constitutional Amendments 2-64 and 3-64.

ACTION: Voted to oppose Constitutional Amendments 2-64 and 3-64.

The committee also recommended that an ad hoc committee of the House of Delegates be established to study the size of the Council and the redefinition of Councilor Districts, if necessary. Discussion was held on the advisability of a concurrent study of representation in the House of Delegates.

ACTION: Voted to approve recommendation of committee for establishment of an ad hoc committee of the House of Delegates to study the composition and representation of the Council and the House of Delegates.

22. *Ad Hoc Committee on Workmen's Compensation*

Chairman Anderson requested approval of a request to the Industrial Accident Commission for amendment of its rules of procedure by deleting a portion of Sec. 10805, which specifies that the minimum fee schedule of the commission is to be construed as prima facie evidence of the value of the services rendered.

ACTION: Voted approval of request for deletion of portion of Section 10805 of IAC rules establishing minimum schedule as prima facie evidence of value of services.

Doctor Anderson also asked approval of three legislative bills which would remove from the law three present sections relating to the inspection of hospitals, hospital reports on their facilities and commission approval of the competence of medical consultants. These sections are obsolete and impractical.

ACTION: Voted approval of legislation to delete three sections of the Labor Code as outlined in report.

Doctor Anderson further requested approval of a proposal to add to Section 5304 of the Labor Code the requirement that copies of agreements between physicians and employers or insurance carriers for the provision of medical services for industrial care be furnished to the Industrial Accident Commission for a review as to their being fair and equitable.

ACTION: Addition of review requirement to Section 5304 of the Labor Code approved.

23. *Task Force on Kerr-Mills Program*

Chairman Teall of the task force on the Kerr-Mills program reviewed the press conference held February 1, with television and telephone facilities extending from Sacramento to San Francisco, Los Angeles, San Diego, Bakersfield and Fresno.

Doctor Teall also reported that endorsements by interested groups of the Association's position on medical care for the aging should be solicited at this time.

24. *Commission on Medical Services*

Mr. Thomas presented a request for participation by the Association in an "Interagency Council for Nursing Homes in California," a new organization being formed by the California Nursing Homes Association. No financial requirement is indicated.

ACTION: Voted to participate as outlined.

25. *Scientific Board*

Councilor Shaw, chairman, presented a request that California Medical Education & Research

Foundation be asked to solicit funds for use in continuing medical education.

ACTION: Voted approval of request to CMERF to solicit funds for improving correlation and geographical spacing of continuing medical education programs.

Doctor Shaw also reported that the Scientific Board had reviewed the Council's request for an opinion as to placing under the Scientific Board the functions of the Committee on Adverse Drug Reactions and that the board would be happy to undertake this function. It was pointed out that present committees are engaged in both the scientific and the legal questions of adverse drug reactions.

ACTION: Voted to transfer the Committee on Adverse Drug Reactions to the Scientific Board.

Doctor Shaw further reported the board's proposal that an ad hoc committee be named to study the suggestion of Doctor T. Eric Reynolds, president of California Physicians' Service, that a mechanism be established for the multiple screening of laboratory procedures.

ACTION: Voted to appoint a Council ad hoc committee to study multiple screening laboratory procedures, the Committee on Committees to nominate members with consultation from the nominating committee of the Scientific Board.

27. *Honoring Doctor Saunders*

Councilor Richard S. Wilbur, chairman, reported for an ad hoc committee and offered the following resolution:

RESOLVED: That at an appropriate time during the 1965 annual House of Delegates meeting, a plaque be presented to Chancellor John B. deC. M. Saunders expressing the admiration of the California Medical Association for his contributions to all phases of medical education and the gratitude of the California Medical Association for his successful efforts to serve the objectives of medicine in this Association.

ACTION: Resolution voted as offered.

28. *Time and Place of Next Meeting*

The chairman announced that the Council would next meet at 4 p.m., Friday, March 26, at the Mark Hopkins Hotel, San Francisco.

29. *Honoring Mr. Frank A. Lawrence*

Doctor Sherman presented a resolution in honor of the late Frank A. Lawrence, a member of the State Industrial Accident Commission for more than 25 years, reading as follows:

Whereas, Industrial Accident Commissioner Frank A. Lawrence has given distinguished service to the State of California; and

Whereas, He has significantly furthered interest in the injured worker; and

Whereas, His recent death represents a great loss to the State of California; therefore, be it

RESOLVED: That the California Medical Association express its sorrow at the passing of Frank A. Lawrence and convey its heartfelt sympathy to his family.

ACTION: Resolution voted as presented.

29. *Role of Medicine in Society*

Doctor Watts proposed that the Committee to Study the Role of Medicine in Society be asked to study the statements of President Johnson's messages to the Congress in 1964 and 1965 and more recently in connection with the report of the "De-Bakey Committee" as to their effect on medical education and medical practice.

ACTION: Voted to request Committee to Study the Role of Medicine in Society to study the President's messages and their effect on medical education and medical practice, if adopted and implemented, with such assistance as may be needed from the Bureau of Research and Planning and the liaison committee to medical schools.

Adjournment

There being no further business to come before it, the meeting was adjourned at 4:35 p.m. in the memory of Samuel Gendel, M.D.

CARL E. ANDERSON, M.D., *Chairman*

MATTHEW N. HOSMER, M.D., *Secretary*

❧ In Memoriam ❧

BEEMAN, JOHN WHITNEY, Torrance. Died February 12, 1965, in Los Angeles, aged 59, of carcinoma. Graduate of the College of Medical Evangelists, Loma Linda-Los Angeles, 1934. Licensed in California in 1934. Doctor Beeman was a member of the Los Angeles County Medical Association.



BROCK, ERNEST, Imperial. Died February 14, 1965, in Indio, aged 64. Graduate of Jefferson Medical College of Philadelphia, Pennsylvania, 1928. Licensed in California in 1940. Doctor Brock was a member of the Imperial County Medical Society.



CARTER, WILLIAM ELMER, San Francisco. Died February 14, 1965, in San Francisco, aged 82. Graduate of the College of Physicians and Surgeons, Los Angeles, 1908. Licensed in California in 1908. Doctor Carter was a retired member of the San Francisco Medical Society and the California Medical Association, and an associate member of the American Medical Association.



CIERI, SALVATORE, Oakland. Died March 2, 1965, aged 60. Graduate of the University of California School of Medicine, Berkeley-San Francisco, 1931. Licensed in California in 1931. Doctor Cieri was a member of the Alameda-Contra Costa Medical Association.



DART, ARTHUR EDWARD (A. EDWARD), Oakland. Died February 25, 1965, in Oakland, aged 76, of rupture of abdominal aneurysm. Graduate of the University of California School of Medicine, Berkeley-San Francisco, 1923. Licensed in California in 1923. Doctor Dart was a member of the Alameda-Contra Costa Medical Association.



GRAY, HORACE, Santa Barbara. Died February 24, 1965, in Santa Barbara, aged 77. Graduate of Harvard Medical School, Boston, Massachusetts, 1914. Licensed in California in 1924. Doctor Gray was a retired member of the Los Angeles County Medical Association and the California Medical Association, and an associate member of the American Medical Association.



GRIESEMER, RUTH CORHAM, North Hollywood. Died March 4, 1965, in Glendale, aged 66, of cancer. Graduate of the University of Michigan Medical School, Ann Arbor, 1930. Licensed in California in 1944. Doctor Griesemer was a member of the Los Angeles County Medical Association.



IRWIN, JOHN C., Los Angeles. Died February 26, 1965, in Hollywood, aged 78, of cerebral thrombosis. Graduate of Indiana University School of Medicine, Bloomington-Indianapolis, Indiana, 1910. Licensed in California in 1917. Doctor Irwin was a retired member of the Los Angeles

County Medical Association and the California Medical Association, and an associate member of the American Medical Association.



KING, HERBERT RILEY, Winters (Yolo County). Died February 12, 1965, in Winters, aged 85. Graduate of the University of Kansas School of Medicine, Laurence-Kansas City, 1906. Licensed in California in 1914. Doctor King was a retired member of the Yolo County Medical Society and the California Medical Association, and an associate member of the American Medical Association.



MEYERS, EMERY LAURENCE, Chico. Died February 28, 1965, in Chico, aged 85. Graduate of Creighton University School of Medicine, Omaha, Nebraska, 1906. Licensed in California in 1910. Doctor Meyers was a retired member of the Butte-Glenn Medical Society and the California Medical Association, and an associate member of the American Medical Association.



MOHR, GEORGE JOSEPH, Skokie, Illinois. Died in March, 1965, aged 69. Graduate of Rush Medical College, Chicago, Illinois, 1919. Licensed in California in 1960. Doctor Mohr was a member of the Los Angeles County Medical Association.



MOVIUS, CLAUDE KENNETH, Los Angeles. Died February 11, 1965, in Hollywood, aged 63, of heart disease. Graduate of Washington University School of Medicine, St. Louis, Missouri, 1927. Licensed in California in 1928. Doctor Movius was a member of the Los Angeles County Medical Association.



MURPHY, HARRY WILTON, Long Beach. Died February 22, 1965, aged 97. Graduate of State University of Iowa College of Medicine, Iowa City, 1906. Licensed in California in 1921. Doctor Murphy was a retired member of the Los Angeles County Medical Association and the California Medical Association, and an associate member of the American Medical Association.



PATE, WALDO HAYS, Auburn. Died February 22, 1965, in Grass Valley, aged 67. Graduate of Stanford University School of Medicine, Palo Alto-San Francisco, 1934. Licensed in California in 1934. Doctor Pate was a member of the Placer-Nevada County Medical Society.



ROBBINS, EDWARD, Los Angeles. Died February 22, 1965, in Los Angeles, aged 56, of cerebral vascular accident. Graduate of the College of Osteopathic Physicians and Surgeons, Los Angeles, 1936. Licensed in California in 1936. M.D. degree from California College of Medicine, 1962. Doctor Robbins was a member of the Los Angeles County Medical Association.

SAVAGE, WILLIAM W., San Bernardino. Died February 9, 1965, in Van Nuys, aged 80. Graduate of Cooper Medical College, San Francisco, 1909. Licensed in California in 1909. Doctor Savage was a retired member of the San Bernardino County Medical Society and the California Medical Association, and an associate member of the American Medical Association.



SWEZEY, SAMUEL, Los Angeles. Died February 12, 1965, in Santa Monica, aged 82, of arteriosclerosis. Graduate of Vanderbilt University School of Medicine, Nashville, Tennessee, 1915. Licensed in California in 1925. Doctor Swezey was a member of the Los Angeles County Medical Association.



WILLIAMS, LOUIS ALDEN, Los Angeles. Died February 26, 1965, in Glendale, aged 53. Graduate of the University

of Michigan Medical School, Ann Arbor, 1938. Licensed in California in 1946. Doctor Williams was a member of the Los Angeles County Medical Association.



WILLSON, FRANK COLE, San Bernardino. Died January 4, 1965, in San Bernardino, aged 66. Graduate of Loyola University School of Medicine, Chicago, Illinois, 1926. Licensed in California in 1947. Doctor Willson was a member of the San Bernardino County Medical Society.



WITT, JOSEPH A., San Francisco. Died February 9, 1965, in Englewood, Colorado, aged 41. Graduate of the University of Colorado School of Medicine, Denver, 1947. Licensed in California in 1955. Doctor Witt was a member of the San Francisco Medical Society.



PUBLIC HEALTH REPORT

MALCOLM H. MERRILL, M.D., M.P.H.
Director, State Department of Public Health

CONCERNED ABOUT the nature and extent of the many problems created by neurological and sensory disorders in California, and aware of the need for efficient and coordinated approaches, the State Health Department embarked on a one-year developmental project. The department has now completed the federally supported study.

It is estimated that more than 500,000 Californians have one or more neurosensory conditions. And, because of the severity of the disorders, the normal functioning of the patient's family may be seriously impaired by long-term disability and by the need for a substantial amount of specialized care and treatment.

Of particular importance was the finding that nearly a quarter of a million children in California are estimated to have some degree of minimal cerebral dysfunction, with 14,000 requiring special medical and educational management. Facilities and trained personnel for the adequate diagnosis, treatment, and management are not available from our Crippled Children Services program.

The study determined that increased and improved efforts of primary prevention are needed for those neurological and sensory conditions that can be prevented. Recent successes in almost completely preventing poliomyelitis and blindness due to retrolental fibroplasia could be duplicated for the neurological and sensory sequelae of measles by a vaccination program aimed at prevention of the disease.

Adequate prenatal and perinatal care can reduce morbidity and mortality and should be available to all persons at risk and in need of such care.

Secondary prevention can reduce the gravity of most of the disorders through early case finding, diagnosis, treatment and rehabilitation. However, the project disclosed that very few specialized facilities or services, particularly very few specialists in neurology and physical medicine, were available to Californians who live outside the major coastal metropolitan centers. Because of this, there is a need to encourage the development of new services and to stimulate interest in neurological and sensory disorders among local pediatricians, internists and general practitioners.

Neurological and sensory disorders, by their very nature, present special problems to the medical profession as well as to the community. While the total number of cases of all conditions is quite large, the frequency of some conditions is relatively low. Because of this, the average physician is faced with the difficult task of diagnosing and treating a condition that he may encounter only a few times in his professional career. Referral to appropriate specialists may not always be practical, as there are relatively few in the state and they generally are located in the major population centers.

In addition to the medical problems, each new case may create severe social problems beyond those associated with many other chronic disorders. The patient, and often his family, may need financial assistance, special education and training, medical and social counseling and rehabilitation, special residential facilities and other scarce and expensive community services.

Some services for persons with neurological or sensory disorders are available from governmental or voluntary health organizations. These services, however, are often restricted to certain conditions or age groups, and the present level of services does not meet the needs.

Traveling multidiscipline diagnostic and consultation teams have been suggested as one way to provide services in outlying areas and to stimulate interest in and services for this group of disorders.

Department recommendations include the establishment of a permanent control program; broadening of the crippled children program to include neurological and sensory conditions that are not now eligible for services, such as epilepsy, minimal cerebral dysfunction and mental retardation.

Other recommendations include further development of the maternal and infant care grant program to assist local agencies to develop services aimed specifically at prospective high-risk mothers, and improve public health services such as communicable disease control, accident prevention, maternal and child health services, radiological health, and health education in order to reduce the incidence of neurological and sensory disorders.

15th ANNUAL regional postgraduate institute

AHWAHNEE HOTEL
Yosemite
May 27-28, 1965

SAN JOAQUIN VALLEY COUNTIES

Presented cooperatively by San Joaquin Valley Counties Medical Societies, University of Southern California School of Medicine and California Medical Association Committee on Continuing Medical Education. A 12½-hour course.

HOST: Fresno County Medical Society.

Regional Chairman: Howard Corbus, M.D., 1300 North Fresno Street, Fresno.

INSTITUTE FEE: \$15.00. For additional information contact Continuing Medical Education office, California Medical Association, 693 Sutter Street, San Francisco 94102. All California Medical Association members and their families are cordially invited to attend.

TWO SYMPOSIA: LIVER DISEASES . . . ENDOCRINOLOGY

This program will emphasize practical aspects of liver disease and endocrinology. While clinical aspects will be stressed, the effort will be made to emphasize the basic principles of clinical features.

THURSDAY, MAY 27

8:15—Registration

Morning Session

9:00-9:30—Adrenal Hypofunction—Don H. Nelson, M.D.

9:30-10:00—Differential Diagnosis of Pigmented Urine—Rudi Schmid, M.D.

10:00-10:30—Oral Hypoglycemic Agents — Robert E. Tranquada, M.D.

10:30-10:45—Intermission

10:45-12:15—CONCURRENT WORKSHOPS (you may go to one of your choice):

A. Liver Disease: Differential Diagnosis of Jaundice—Rudi Schmid, M.D., William P. Mikkelsen, M.D., Robert L. Peters, M.D. and Telfer B. Reynolds, M.D.

B. Endocrinology: Adrenal Disease—Don H. Nelson, M.D., John E. Bethune, M.D. and Donald W. Petit, M.D.

Afternoon Session

2:00-2:30—Chronic Hepatitis—Telfer B. Reynolds, M.D.

2:30-3:00—Insulin Antagonism in Pregnancy and Obesity—William H. Daughaday, M.D.

3:00-3:30—Problems in Gallbladder Disease—William P. Mikkelsen, M.D.

3:30-3:50—Intermission

3:50-5:00—CONCURRENT WORKSHOPS (you may go to one of your choice):

A. Liver Disease: Liver Biopsy—Telfer B. Reynolds, M.D. and Robert L. Peters, M.D.

B. Endocrinology: Therapeutic Problems in Diabetes—William H. Daughaday, M.D. and Robert E. Tranquada, M.D.

FRIDAY, MAY 28

Morning Session

9:00-9:30—Growth Hormone Secretion in Disease—William H. Daughaday, M.D.

9:30-10:00—Alcohol and the Liver—Rudi Schmid, M.D.

10:00-10:30—Hypercalcemia—John E. Bethune, M.D.

10:30-10:45—Intermission

10:45-12:15—CONCURRENT WORKSHOPS (you may go to one of your choice):

A. Liver Disease: The Porphyrias — Rudi Schmid, M.D.

B. Endocrinology: Electrolyte Disturbances Resulting from Endocrine Disease — John E. Bethune, M.D., Don H. Nelson, M.D. and Robert E. Tranquada, M.D.

Afternoon Session

2:00-2:30—Jaundice in Pregnancy and Its Relationship to Tetracycline—Robert L. Peters, M.D.

2:30-3:00—Thyroid Diagnosis—Old and New—Donald W. Petit, M.D.

3:00-3:30—Treatment of Ascites — Telfer B. Reynolds, M.D.

3:30-3:50—Intermission

3:50-5:00—CONCURRENT WORKSHOPS (you may go to one of your choice):

A. Liver Disease: Portal Hypertension—William P. Mikkelsen, M.D.

B. Endocrinology: Diagnosis and Therapy of Thyroid Disease—Donald W. Petit, M.D.

WOMAN'S AUXILIARY

to the California Medical Association



Husband-Wife Membership

AT THE CLINICAL MEETING of the American Medical Association in Miami Beach in December, 1964, the House of Delegates passed a resolution urging the local medical societies to encourage the joint husband-wife membership project.

Why does the Auxiliary urge the physician to pay his wife's dues with his own? Because we feel strongly that every wife should be a member whether she takes an active part or not. At least she can read about the things we are doing.

When we are asked by the AMA and the CMA to educate our friends and neighbors in a hurry (as was the case with the Eldercare bills), we have no way of communicating with your wife unless she is a member of the Auxiliary. What we do accomplish with our 8,500 members would be much more than just doubled if we had all 20,000 wives as members.

Recently a physician's wife asked me why the Auxiliary was not taking a more active part in a project that she was urging through her PTA. I suggested that she write to the Auxiliary's Community Service chairman giving the facts and figures to her and suggesting how we could help. But my questioner replied that she was so active with her PTA that she didn't have time to write or even be a member of the Auxiliary.

The Auxiliary encourages its members to be active in community organizations. We want all physicians' wives to participate in local projects.

Mrs. Murphy is now a past-president. Her term of office ended with the annual meeting in March of this year.

But isn't it important for them to be up-to-date on what is new in the medical world? How can they answer when they are questioned if they haven't received our publications or attended meetings?

Our projects encompass a wide variety of age groups and interests. For women interested in teen-age problems, we have great need for volunteers. We train safe baby-sitters; we teach water safety, driving safety, teen-age nutrition; we educate about immunization, overweight, heart disease and cancer.

We have raised almost seventy thousand dollars this year to provide loans and scholarships to students interested in medicine, nursing and paramedical fields. These are boys and girls in our own communities in California. We interest young people in these fields by presenting health career days in high schools, providing sponsors and programs for their high school paramedical careers clubs.

We work with the older citizens in our communities, giving them personal attention where it is needed, including hot meals, letter writing, reading, running errands and the like.

We provide approved medical programs for outside organizations on a number of subjects. Your wife should know what is available for the organizations to which she belongs.

Physicians' wives are not all cut from the same pattern. We are homemakers, artists, musicians, businesswomen, athletes, educators—but we do have one thing in common, and that is our husbands' profession. That should be reason enough for the Auxiliary to have 100 per cent membership of those eligible.

We are a very exclusive club. All our efforts are aimed at helping our husbands see that our neighbors obtain the best medical care in the world.

The President of the Woman's Auxiliary to the AMA says: "Better Health—Better World" and I believe her.

MRS. LYLE F. MURPHY,
President,
Woman's Auxiliary to the
California Medical Association

EDUCATION NOTICES

Meetings and Courses

COMMITTEE ON CONTINUING MEDICAL EDUCATION

THIS BULLETIN of the dates of continuing education programs and the meetings of various medical organizations in California is supplied by the Committee on Continuing Medical Education of the California Medical Association. In order that they may be listed here, please send communications relating to your future meetings or postgraduate courses to Committee on Continuing Medical Education, California Medical Association, 693 Sutter Street, San Francisco, California 94102.

KEY TO ABBREVIATIONS AND SYMBOLS

Medical Centers and CMA Contacts
for Postgraduate Course Information

CMA:	California Medical Association For information regarding Postgraduate Institutes and Circuit Courses, Contact: Continuing Medical Education, California Medical Association, 693 Sutter Street, San Francisco 94102. PRospect 6-9400, Ext. 68.
LLU:	Loma Linda University For information on courses contact: W. F. Norwood, Ph.D., Assistant Dean and Chairman, Division of Continuing Education, Loma Linda University School of Medicine, 1720 Brooklyn Ave., Los Angeles, California 90033, ANgeles 9-7241, Ext. 214.
PRES.	Presbyterian Medical Center
MED. CTR.	For information on courses contact: Arthur Selzer, M.D., chairman, Education Committee, Presbyterian Medical Center, Clay and Webster Streets, San Francisco 94115, WEst 1-8000.
UCLA:	University of California at Los Angeles For information on courses for physicians or ancillary personnel contact: Thomas H. Sternberg, M.D., Assistant Dean and Head, Continuing Education, U.C.L.A. Medical Center, Los Angeles, 90024, 478-9711, Ext. 2114.
UCSF:	University of California, San Francisco For information on courses for physicians or ancillary personnel contact: Seymour M. Farber, M.D., Dean, Educational Services and Director, Continuing Education, University of California Medical Center, Room 565-U, San Francisco 94122, 666-1692.
USC:	University of Southern California For information on courses contact: Phil R. Manning, M.D., Associate Dean, Postgraduate Division, USC School of Medicine, 2025 Zonal Ave., Los Angeles 90033, CApital 5-1511, Ext. 300.
STAN:	Stanford University For information on courses for physicians or ancillary personnel contact: Roy Cohn, M.D., Associate Dean for Graduate Affairs, Stanford University School of Medicine, 300 Pasteur Drive, Palo Alto, DAvenport 1-1200.

*Fee to be announced.

†Hours to be announced.

APRIL

April 20-May 25—**San Francisco Academy of General Practice Spring Lecture Series.** Fort Miley Veterans' Administration Hospital. Six successive Tuesdays. Members: \$15; Non-members: \$20. Contact: Victor Bonfilio, M.D., 1548 Stockton Street, San Francisco.

April 22-24—**Inheritable Endocrine and Metabolic Diseases: Prevention, Detention, and Treatment.** Thursday-Saturday. UCSF. 16 hours. \$60.

April 23-24—**St. Mary's Long Beach Hospital Postgraduate Seminar: Diabetes Mellitus and Associated Endocrine Disorders.** Friday: 12:00-2:00 p.m.; Saturday: 10:00-12:00 noon and 12:30-2:00 p.m. (3 sessions). \$5. Contact: Leslie Irwin, M.D., Director of Medical Education, St. Mary's Long Beach Hospital, 509 East Tenth Street, Long Beach 90813.

April 24-25—**Emotional Stresses in the Family.** Sutter Memorial Hospital, Sacramento. Saturday-Sunday. UCSF. 12 hours. \$10.

April 25-30—**Pacific Coast Oto-Ophthalmological Society Annual Meeting.** Hotel del Coronado, Coronado. Sunday-Friday. Contact: George E. Morgan, M.D., executive secretary-treasurer, 960 East Green Street, Pasadena 91101.

April 29-May 1—**Ear, Nose, Throat.** Friday-Saturday. UCSF.*†

April 30-May 1—**Medicine of the Newborn.** Friday-Saturday. UCSF. 14 hours. \$40.

MAY

May 3-4—**Surgery of the Head and Neck.** Monday-Tuesday. 12 hours. UCLA.*

May 3-6—**Anesthesiology Biennial Western Conference.** Vancouver, British Columbia. Monday-Thursday. Contact: Gilbert E. Kinyon, M.D., vice chairman, Governing Board; publicity chairman, 5252 Chelsea, La Jolla.

May 5-7—**Annual Cancer Seminar.** Co-Sponsored by Nevada State Medical and Dental Associations; International College of Surgeons, Nevada Chapter; Reno Cancer Center; American Cancer Society, Nevada Division, Inc. The New Golden, Reno, Nevada. Wednesday-Friday. Contact: American Cancer Society, Nevada Division, 101 West Arroyo Street (#3), Reno, Nevada.

May 6-7—**Diseases of the Larynx.** Thursday-Friday. 12 hours. UCLA.*

May 6-8—**Ear, Nose, Throat.** Thursday-Saturday. UCSF. 17 hours. \$50.

May 7-8—**Santa Barbara Medical Clinic Annual Program: Symposium on Infectious Diseases and Antibiotic Therapy.** Santa Barbara Biltmore Hotel, Santa Barbara. Friday-Saturday. Contact: Dean A Smith, M.D., The Santa Barbara Medical Clinic, 1421 State Street, Santa Barbara.

May 12-14—**Highlights of Modern Ophthalmology.** For Ophthalmologists only. Wednesday-Friday. \$75. Pres. Med. Ctr.

May 13-16—**The Arterial Tree.** Thursday-Sunday. 24 hours. UCLA.*

May 14—**California Heart Association Scientific Sessions.** Mark Thomas Inn, Monterey. Friday. Contact: Marvin A. Epstein, M.D., chairman, California Heart Association, 1370 Mission Street, San Francisco.

May 19—**Memorial Hospital of Long Beach Medical Staff Annual Symposium.** Memorial Hospital, 2801 Atlantic Avenue, Long Beach. Wednesday. Contact:

George X. Trimble, M.D., secretary, Symposium Committee, Memorial Hospital, Long Beach.

May 19-21—**Highlights of Modern Ophthalmology.** Pres. Med. Ctr. Wednesday-Friday. \$75. Contact: Secretary of the Lions Eye Bank, Pres. Med. Ctr., 2018 Webster Street, San Francisco.

May 20—**San Francisco Society of Internal Medicine Annual Meeting.** San Francisco Golf Club. Thursday. Contact: Charles Barnett, M.D., secretary, 384 Post Street, San Francisco.

May 20-21—**General Surgery.** Thursday-Friday. UCSF. 12½ hours. \$50.

May 21-23—**Laboratory Diagnosis.** Friday-Sunday. 18 hours. UCLA.*

May 27-28—**SAN JOAQUIN COUNTIES—Regional Postgraduate Institute presented by California Medical Association** in cooperation with USC School of Medicine. Ahwahnee Hotel, Yosemite. Chairman: Howard Corbus, M.D., 1300 North Fresno, Fresno.

May 27-June 17 — **Neuropsychiatric Management in Daily Practice.** UCSF in Modesto. Thursday evenings. 8 hours. \$7.

May 29-June 30—**Fourth Annual Medical Centers of Europe.** \$250. USC.

May 31-June 11—**Prosthetics-Orthotics.** Monday-Friday. 90 hours. \$200. UCLA.

JUNE

June 10-11—**Nevada Academy of General Practice Annual Scientific Meeting.** Faculty of USC School of Medicine. Symposium on Gastroenterology. Golden Hotel, Reno, Nevada. Thursday-Friday. Contact: Robert V. Broadbent, M.D., 601 Mill Street, Reno, Nevada.

June 16-19—**California Society of Anesthesiologists Biennial Meeting.** Sahara-Tahoe, Las Vegas, Nevada. Wednesday-Saturday. Contact: Lewis H. Lambert, M.D., chairman, 3001 Laurel Drive, Sacramento 25.

June 23-25—**Childrens Hospital Sixth Annual Pediatric Seminar.** Town and Country Hotel, San Diego. Wednesday-Friday. \$25. Contact: Richard L. Johnston, administrator, Childrens Hospital, 8001 Frost Street, San Diego 11.

June 23-25—**Treatment of Fractures.** USC at Los Angeles County Hospital. Wednesday-Friday. 22 hours. \$80.

June 24-26—**SACRAMENTO VALLEY COUNTIES—Regional Postgraduate Institute presented by California Medical Association** in cooperation with UCLA School of Medicine. Harvey's Resort Hotel, Lake Tahoe. Co-Chairmen: Dixon L. Hughes, M.D., 3320 White Oak Court, Sacramento; Philip J. Reilly, M.D., 6437 Fair Oaks Boulevard, Carmichael.

June 25-27—**Western Conference of Foundations for Medical Care.** Hotel del Coronado, San Diego. Friday-Sunday. Contact: Milo A. Youel, M.D., chairman, San Diego County Medical Society, 3427 Fourth Avenue, San Diego 92103.

JULY

July 15-16—**NORTH COAST COUNTIES—Regional Postgraduate Institute presented by California Medical Association** in cooperation with Loma Linda University School of Medicine. Eureka Inn, Eureka, Chairman: J. Roy Wittwer, M.D., 716 Harris Street, Eureka.

July 29-30—**Recent Trends in Strabismus Management and Treatment.** For physicians in Ophthalmology or EENT only. Thursday-Friday. \$60. Pres. Med. Ctr.

AUGUST

August 30-September 2—**American Hospital Association.** San Francisco. Monday-Thursday. Contact: Edwin L. Crosby, M.D., director, 840 North Lake Shore Drive, Chicago 11, Illinois.

SEPTEMBER

September 9-11 — **Saint John's Hospital Annual Postgraduate Assembly.** Thursday-Saturday. Contact: John C. Eagan, M.D., director, 1328 Twenty-second Street, Santa Monica.

OCTOBER

October 8-9—**Western Industrial Medical Association.** Hilton Hotel, San Francisco. Friday-Saturday. Contact: Christine Einert, M.D., 2151 Berkeley Way, Berkeley 4.

October 12—**Northeastern California Rheumatoid Foundation Seminar: Medical and Surgical Aspects of Arthritis.** Mercy Hospital, Sacramento. Tuesday. Contact: Harold B. Strauch, M.D., 4101 J Street, Sacramento.

October 24-27—**California Academy of General Practice Annual Scientific Assembly.** Statler Hotel, Los Angeles. Sunday-Wednesday. 13 hours. Contact: Mr. William W. Rogers, executive secretary, California Academy of General Practice, 9 First Street, Room 900, San Francisco.

Courses Offered Continuously or by Arrangement

LLU:

As Arranged—**Traineeships** in clinical and other departments are available by arrangement with department chairmen of the Postgraduate Division. 80 hours minimum.

Anesthesia, 6 months. 250-300 hours. \$350.

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Continuously—**SUMMA MEDICA:** A systematic, sequential curriculum of lectures by eminent specialists from leading medical centers and universities, comprehensive in scope, and issued weekly on magnetic tape. The lectures include the following categories: Anesthesiology, Cardiology, Gastroenterology, Gynecology, Internal Medicine, Neurology, Occupational Medicine, Oncology, Obstetrics, Orthopedics, Ophthalmology, Pediatrics, Physical Medicine and Rehabilitation, Preventive Medicine, Psychiatry, Rheumatology, Urology, etc. These lectures are available at no cost if physicians will send requests to Walter E. Macpherson, M.D., Professor of Medicine, LLU, phone: Angelus 9-7241, ext. 201, or Lifelong Medical Learning, Inc., 1832 East Michigan Avenue, Los Angeles 90033, phone: 268-9311, and include speed of his tape recorder (1½ i.p.s. or 3¾ i.p.s.).

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Continuously—**Courses** presented by special arrangement: **Anesthesia** (Full time for one to three weeks or part time by arrangement).

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Advanced Home Course in Electrocardiography. One year postgraduate series, ECG interpretation by mail. Fifty-two issues \$85. Physicians may register at any time.

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Audio-Digest Foundation (a non-profit subsidiary of the California Medical Association) provides by subscription twice-a-month tape-recorded summaries of leading national meetings and authoritative surveys of current literature. Seven separate services in: General Practice, Surgery, Internal Medicine, Obstetrics-Gynecology, Pediatrics, Anesthesiology, and Ophthalmology. A new Catalog of outstanding lectures and panel discussions in all areas of medical practice is also available. For information, write: Mr. Claron L. Oakley, Editor, 619 South Westlake Avenue, Los Angeles.

TO HAVE YOUR MEETING OR PROGRAM LISTED IN CALIFORNIA MEDICINE
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693 Sutter Street, San Francisco, California 94102

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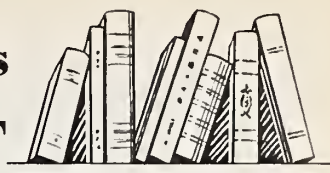
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(give name, title, address)

The Physician's BOOKSHELF



BASIC OTOLARYNGOLOGY—David A. Dolowitz, M.D., Associate Professor of Surgery; Chairman, Division of Otorhinolaryngology, University of Utah College of Medicine; Staff, Holy Cross Hospital, Salt Lake City. McGraw-Hill Book Company (The Blakiston Division), New York, 1964. 383 pages, \$12.50.

Dr. Dolowitz has oriented his book for the student and the general practitioner as a reference text on the routine examination, diagnosis and treatment of otolaryngologic problems. The book consists of 13 chapters, six of which are concerned with regional diseases, along with a basic anatomical and physiological review of those areas. The remainder of the chapters discuss common problems related to the specialty such as the URI, deafness, vertigo, facial paralysis and headache.

The section on the diseases of the mouth and pharynx is particularly comprehensive, while that of the treatment of otolaryngologic emergencies, by its very brevity, becomes an efficient and concise reference source. A detailed bibliography at the end of each of the chapters enables the reader to pursue details of interest. The subject index appears to be quite complete.

Unfortunately, because of poor illustrations, inadequate editing, inconsistent organization, redundancies, and obsolescence in its coverage of such an important subject as microsurgery of the ear, this work falls below the standards established by other, recent otolaryngology texts.

PAUL E. POENISCH, M.D.

* * *

THE DIFFERENTIAL DIAGNOSIS OF DIARRHEA—Edited by Sherman M. Mellinkoff, M.D., Dean and Professor of Medicine, University of California (Los Angeles) School of Medicine. McGraw-Hill Book Company, Blakiston Division, New York, 1964. 366 pages, \$16.00.

This book comprises a number of chapters by different authors, each of whom deals with a group of causes of diarrhea. The quality of the chapters is variable. In some, there is a tendency towards enumeration of every conceivable cause of disturbed bowel function, regardless of their clinical incidence and importance, whereas in other chapters an exemplary balance is achieved. Some duplication of material is inevitable but is rather less evident than is usual in works of this kind.

The editor contributes an introductory chapter which contains a number of telling points. It is, however, unfortunate that nowhere can any impression be gained of the relative incidence and importance of causes of diarrhea in various regions of the United States. There is a useful summary by J. M. Adams of the present state of knowledge of virus enteritis and there are excellent accounts by Hendrix of ulcerative colitis and regional enteritis and by Clinton Texler of malabsorption syndromes in adults. The chapter on psychogenic diarrhea would be improved by brief comment on other aspects of therapy than the purely psychiatric.

These criticisms apart, this appears to be a book which provides a useful source of information to the student and internist when confronted with a case of diarrhea of which the cause is not immediately evident.

PSYCHIATRIC CARE—Psychiatry Simplified for Therapeutic Action—Jurgen Ruesch, M.D., Carroll M. Brodsky, Ph.D., M.D., and Ames Fischer, M.D. Grune & Stratton, Inc., 381 Park Avenue South, New York 16, N.Y., 1964. 238 pages, \$8.75.

This book reviews in basic fashion the nature and treatment of psychiatric disorders and the problems of those who treat them. It is eclectic, unorthodox in format, and written in simple English, succinct and clear.

Its admitted selectivity and simplification lead to diagnostic statements that vary from the thoughtful and provocative—"Age is the most significant single determinant of behavior" to the dubious—"Preferably, the drug (barbiturate) is withdrawn abruptly."

Some may be irritated by its occasional telegrammatic style, multiple lists and subheadings, but the sections on the psychiatric consultation and on communication with relatives, officials and others should be required reading for all psychiatric residents.

Highly recommended for its stated purpose "Psychiatry simplified for therapeutic action" and for its stated audience "Practicing physicians, psychiatric residents, clinical psychologists, social workers, nurses and others who have to deal with patients."

* * *

NEUROLOGICAL AND ELECTROENCEPHALOGRAPHIC CORRELATIVE STUDIES IN INFANCY—Edited by Peter Kellaway and Ingemar Petersen. A Conference and Symposium sponsored by the World Federation of Neurology and presented under the auspices of Baylor University College of Medicine with the support of the National Institutes of Health and Houston Endowment, October 2 and 3, 1963. Grune & Stratton, Inc., New York and London, 1964. 364 pages, \$14.75.

This monograph is concerned with the ontogenetic evolution of the electrical activity of the brain and the correlation of this evaluation with morphological and behavioral development.

The conference, from which the book is compiled, consisted of 20 scientific presentations which may be divided into two parts. The first 11 papers are concerned with basic research on the maturing electrical activity of the brain, mostly animal. Although the section is of considerable scientific interest, it has limited clinical application. It does provide stimulating reading on such subjects as tissue culture morphology and related electrical activity, maturation of the evoked cortical response in infants and the considered role of the neuroglia in the maturation of some of the slow activity of the cortical electrogram.

The last nine papers (with one exception) deal with the normal maturing, wake and sleep, EEG of infancy, including variables within the normal range and the character and significance of certain abnormal EEG's. For example, there are good presentations on occipital slow and spike foci; EEG in infants with seizures, hypoxic crises, breath holding and subdural collections. The clinically applicable information in these last nine papers is essential reading for the electroencephalographer and of clinical interest and value to the neurologist and neurosurgeon.

NEW DIMENSIONS IN PSYCHOSOMATIC MEDICINE

—Edited by Charles William Wahl, M.D., Associate Professor of Psychiatry and Chief, Division of Psychosomatic Medicine, Department of Psychiatry, Center for The Health Sciences, University of California at Los Angeles; with 13 authors. Little, Brown and Company, Boston, 1964. 340 pages, \$8.50.

The reviewer currently is the Psychiatrist-in-charge of the Adult Psychiatry Clinic at the University of California Medical Center in San Francisco. In this position he has had the opportunity for the past twelve years to work with physicians in all specialties of medicine, dentists and members of paramedical groups.

This book is written by thirteen authors ranging in experience from an internationally known authority in the field of "Psychosomatic Medicine" to a "Fellow in Child Psychiatry." Chapters of especial interest to this reviewer were: The Development of Psychosomatic Medicine, by Franz Alexander, M.D.; Factors Which Affect Symptom Choice in Psychosomatic Medicine, by Charles W. Wahl, M.D.; The Psychodynamics of the Allergic Patient by Charles William Wahl, M.D.; On Being a Sick Physician, by Martin Grotjahn, M.D.; Iatrogenic Neuroses, by Dr. Wahl; Psychophysiologic Oral Bleeding and Periodontal Disease, by Stanley E. Willis II, M.D.; and Emotional Problems Associated with Chronic Organic Illness, also by Dr. Willis.

Dr. Grotjahn's chapter, "On Being a Sick Physician," is a delightful one to read and is filled with wisdom. It contains an attitude that, if held by all physicians, would make their work much more enjoyable, helpful, gratifying and rewarding. This chapter alone is worth the price of the book (\$8.50).

The chapters not mentioned as outstanding contained nothing new to this reviewer in the way of adding to his store of knowledge that would be of help in his service to patients, teaching or research.

HENRY F. ALBRONDA, M.D.

* * *

RECONSTRUCTIVE PLASTIC SURGERY—Principles and Procedures in Correction, Reconstruction, and Transplantation—Edited by John Marquis Converse, M.D., Lawrence D. Bell, Professor of Plastic Surgery, New York University School of Medicine; With a section on the hand edited by J. William Littler, M.D., Chief of Plastic and Reconstructive Surgery, The Roosevelt Hospital, New York City. In Five Volumes: Vol. I—General Principles; Vol. II and Vol. III—The Head and Neck; Vol. IV—Hand and Upper Extremity; Lower Extremity; Vol. V—Trunk, Genito-Urinary; Tissue Transplantation and Burn Shock. W. B. Saunders Company, Philadelphia, 1964. 2253 pages, plus 59 pages of index; Price: \$125 for the set of 5 volumes, or \$25 for Volume IV and \$30 each for the other volumes.

This monumental compendium on plastic and reconstructive surgery by John Marquis Converse represents a new high in reference works in this complex specialty. It is a five volume set, attractively bound and beautifully illustrated. Rather than being a presentation of the work and opinions of one individual, it is the work of 76 different authors whose names read like a "Who's Who in Plastic Surgery in the United States." The text is easily readable; the line drawings and half tones are of extremely high quality. The organization of the book is all that one could desire for brevity and clarity. The Section on the hand by William Littler is especially attractive and is illustrated by the author.

Dr. Converse has drawn from his own extensive experience in editing this very comprehensive text. Whereas it is intended as a reference text primarily, its readability will hold the interest of the reader to such an extent that one finds himself reading on beyond the point of reference on many occasions. It is a valuable edition to the plastic sur-

geons' library and will be invaluable as a reference work to those in training in the Specialty.

The cost, \$125.00, might seem excessive to some, but once the books are examined the reader will most certainly find that he gets more than value received. I am reminded also of advice given by the late Dr. Sterling Bunnell, who once said, "Never stint yourself on books or instruments. The help you get on one case will more than pay for it."

* * *

SUDDEN CARDIAC DEATH—Edited by Borys Surawicz, M.D., and E. D. Pellegrino, M.D. Grune & Stratton, Inc., New York, 1964. 222 pages, \$9.50.

This monograph is a transcription of a symposium held at the University of Kentucky Medical Center in October 1963. A wide variety of distinguished guest speakers participated both in the presentation of papers and in the discussion. Dr. E. D. Pellegrino, Professor and Chairman of the Department, introduced the subject with a thoughtful paper putting the subject in perspective. The editors also introduce each of the major chapter headings with a brief discussion which added greatly to the value of the symposium.

The subjects discussed were the anatomical basis of sudden cardiac death, the mechanism of sudden cardiac death, the vulnerable phase, ventricular fibrillation, ventricular asystole, prognosis in experimental coronary occlusion, prognosis in clinical coronary occlusion: coronary arteriography, prevention of sudden cardiac death, and sudden death and pulmonary embolism. The material in general summarized the previously published work of the distinguished participants and has relatively little new data. On the other hand, there is an extensive bibliography of 497 references which allows the reader to amplify the discussions.

The use of monitoring equipment and the development of resuscitation methods have increased the responsibility of every clinician to understand the problem of sudden cardiac death and its mechanisms. The subject of the monograph is one of obvious importance and as a review of our present state of knowledge by distinguished authorities, it serves a most useful purpose and can be warmly recommended.

MAURICE SOKOLOW, M.D.

* * *

SCINTILLATION SCANNING IN CLINICAL MEDICINE—Based on a Symposium Sponsored by the Department of Radiology of the Bowman Gray School of Medicine—James L. Quinn, III, M.D., Editor; Assistant Professor of Radiology, Northwestern University School of Medicine; Director of Nuclear Medicine, Chicago Wesley Memorial Hospital. W. B. Saunders Company, Philadelphia and London, 1964. 278 pages, \$11.50.

This monograph consists of 19 chapters, written by some 26 contributors.

Early chapters describe the fundamental physical aspects of scanning and the pharmacological principles of radionuclide usage. The advantage of the use of phantoms is properly stressed as a means of minimizing clinical error.

Sections on scanning in relation to thyroid disease, bone metastases, intracranial neoplasms, renal lesions, and pulmonary embolism provide information of distinct clinical value. However, in the opinion of this reviewer, scanning of the pancreas, parathyroids, myocardium, and spleen is not sufficiently developed to be considered an effective addition to clinical diagnosis at present.

Illustrations, diagrams, bibliography, and index are adequate. More emphasis should be placed on radiation safety measures.

The book is recommended to those who have completed basic isotope training and are initiating a clinical scanning program.

J. H. H.

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Dr. Whiting, 41, obtained his Ph.D. from the University of Pennsylvania in 1953. He has held staff appointments in Veterans Administration hospitals in Martinsburg, W. Va., Rutland Heights, Mass., and Pittsburgh, Pa. His two latest positions were with the Association of American Medical Colleges, Evanston, Ill., and the Multipurpose Home Visitor Research Program, Martinez, Calif.

His scientific publications cover a range of topics, many of them reflecting a strong interest in medical education.

Seventh Annual Cancer Seminar To Be Held in Reno, May 5, 6, and 7

Co-sponsors for the Seventh Annual Cancer Seminar to be held at The New Golden in Reno, May 5, 6, and 7, are the Nevada State Medical and Dental Associations; International College of Surgeons, Nevada Chapter; Reno Cancer Center; and the American Cancer Society, Nevada Division, Inc.

The program lists a wide range of topics in the cancer field, with the faculty composed of eminent authorities in their particular specialties.

Following is the agenda:

EDWARD S. HENDERSON, M.D.—Senior Investigator, Laboratory of Chemical Pharmacology, National Cancer Institute, 1963; Attending Physician, Acute Leukemia Service, 1963. Topics: "Treatment of Acute Leukemia," "Supportive Treatment for the Cancer Patient," etc.

RALPH A. STRAFFON, M.D.—Urologist, Cleveland Clinic. Topics: "The Diagnosis and Treatment of Renal Neoplasms," "The Management of Testis Tumors."

JOSEPH P. BELBER, M.D.—Chief, Gastroenterology Section, Veterans Administration Hospital, Martinez, California. Assistant Clinical Professor, University of California Medical School. Topics: "Endoscopy in the Diagnosis of Gastric Carcinoma," "Cancer of the Liver."

WELDON K. BULLOCK, M.D.—Head, Department of Surgical Pathology, Los Angeles County General Hospital. Topics: "The Role of the Pathologist in the Diagnosis of Bone Lesions," "Oral Cancer, Changing Concepts in Diagnosing."

CHARLES G. MOERTEL, M.D.—Consultant, Medical Staff, Mayo Clinic. Assistant Professor of Medicine, University of Minnesota. Topics: "The Carcinoid Tumor and the Carcinoid Syndrome," "Chemotherapy of Gastrointestinal Cancer and the Use of Halogenated Pyrimidines."

J. A. DEL REGATO, M.D.—Director of the Penrose Cancer Hospital, Colorado Springs, Colorado. Professor of Clinical Radiology, University of Colorado. Topics: "Surgery versus Radiotherapy in the Treatment of Carcinoma of the Cervix," "The Treatment of Cancer of the Lower Lip."

RALPH L. BYRON, M.D.—Chairman, Department of Oncologic and General Surgery, City of Hope Hospital, Duarte, California. Topics: "Bilateral Adrenalectomy for Breast Cancer," "Cystectomy with Ileal Segment."

DEE O. N. TAYLOR, D.V.M., Ph.D.—Research Specialist, California Department of Public Health. Topic: "Comparative Human and Canine Oncology."

Further information on the Seminar can be had by writing the Nevada Division, American Cancer Society, 101 West Arroyo, Reno, Nevada 89503.



Family Physician Has Key Role In Care of Mentally Retarded

The family physician today has the key role in the care and treatment of mental retardation—a condition “fully as subtle and complicated as that of open heart surgery or organ transplants.”

His responsibilities were spelled out in a report from the American Medical Association Conference on Mental Retardation appearing in the January 18 *Journal of the American Medical Association*.

The report was compiled by Julius B. Richmond, M.D., of Syracuse, conference chairman; George E. Gardner, M.D., director of the Judge Baker Guidance Clinic, Boston, and George Tarjan, M.D., superintendent and medical director of the Pacific State Hospital, Pomona, Calif.

“In terms of magnitude,” they said, “mental retardation is the most handicapping of all childhood disorders.

“Approximately five million individuals diagnosed at some time in their lives as retarded now live in the United States and some 126,000 more are born yearly. A much larger number probably function ineffectively throughout life, though never identified.”

And yet, said the conference leaders, perhaps 50 per cent of the cases of mental retardation are preventable.

With major infections being conquered, with many metabolic and nutritional disorders brought under relatively effective control, “the physician is at last permitted the time and energy necessary to develop the sophistication he must have in order to grapple effectively on a clinical level with this disorder.” The report itself is intended to serve as a handbook on mental retardation and will be widely distributed to physicians and medical schools.

It delineates the latest knowledge concerning prevention, diagnosis and treatment; lists facilities and services necessary to provide maximum help for the retarded child; offers suggestions for helping the retarded child's family meet their problems, and defines some of the research and education problems which must be solved in coming to grips with retardation.

The report also seeks to encourage new and more rewarding methods of care at the community level where, it is felt, best results can be anticipated. These methods, however, require new facilities, new planning and new organization so that comprehensive, as opposed to piecemeal, care can be provided.

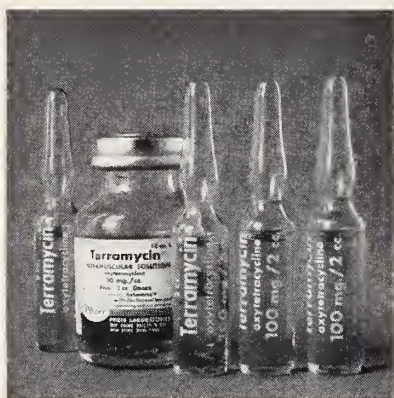
It is not enough, the report pointed out, that physicians be well informed and well organized to cope with the problems of mental retardation. Communities, nationwide, must also be organized so that supporting services—family counseling, psychological testing, special education, rehabilitation and voca-

(Continued on Page 46)

Side effects and precautions: The transitory drowsiness which may occur with hydroxyzine HCl usually disappears spontaneously in a few days with continued therapy, or is correctable by dosage reduction. Dryness of the mouth may be seen with higher doses. Involuntary motor activity has been reported in some hospitalized patients on higher than recommended dosage. Hydroxyzine HCl may potentiate CNS depressants, narcotics such as meperidine, barbiturates, and anticoagulants. In conjunctive use, dosage for these drugs should be decreased. Because drowsiness may occur, patients should be cautioned against driving a car or operating dangerous machinery. **Parenteral Injection Precautions and contraindications:** This dosage form is intended only for I.M. or I.V. administration and should not, under any circumstances, be injected subcutaneously or intradermally. When the usual precautions for I.M. injection have been followed, reports of soft tissue reactions have been rare. Administration should be slow, no faster than 25 mg. per minute, and should not exceed 100 mg. in any single dose. Particular care should be used to insure injection only into intact tissue; a few instances of digital gangrene occurring distal to the injection site have been attributed to inadvertent intravascular injection or periarthral extravasation, both of which should be avoided. **More detailed professional information available on request.**

References: 1) Hoyward-Butt, J. T.: *Rocky Mountain M. J.* 61:39 (Dec.) 1964. 2) Grady, R. W., and Rich, A. L.: *South. M. J.* 54:766 (July) 1961. 3) Steinberg, M., and Holz, W. G.: *New York J. Med.* 60:691 (March) 1960. 4) Javan, F.: *Santé publique* 13:161 (July 5) 1958. 5) Bizzari, D., et al.: *New York J. Med.* 63:529 (Feb. 15) 1963.

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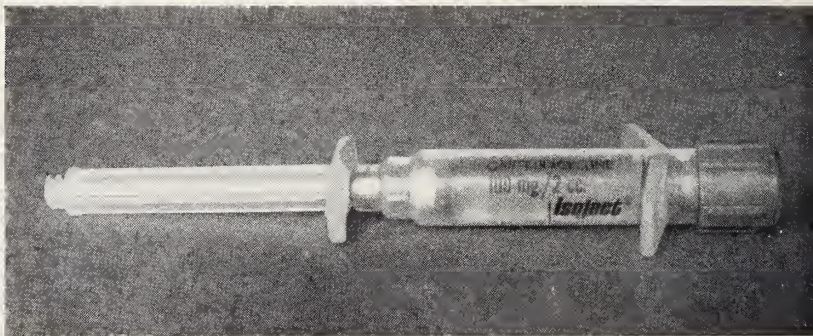
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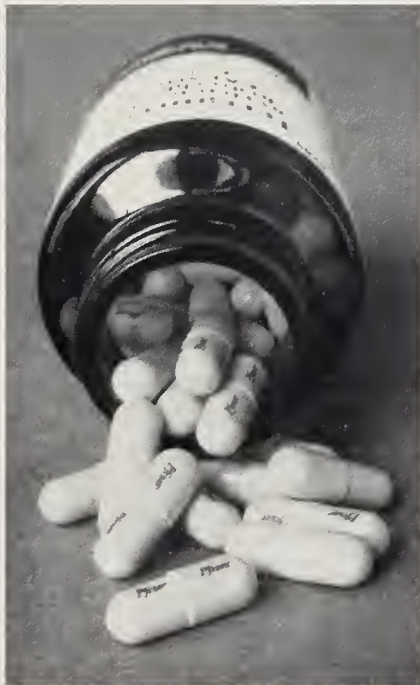
If renal impairment exists, even usual oral and parenteral doses may lead to excessive systemic accumulation and possible toxicity of the drug.

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Precautions: Use of broad-spectrum antibiotics occasionally may result in overgrowth of nonsusceptible organisms. Where such infections occur, discontinue oxytetracycline and institute specific therapy.

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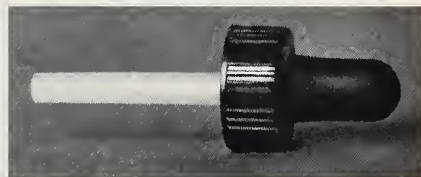
nature, may occur but are rare. Occasional instances of discomfort at the injection site may occur with the intramuscular form. In intravenous administration, where concentrations greater than 5 mg. of antibiotic per ml. of diluent were used, a few instances of phlebitis have been reported.



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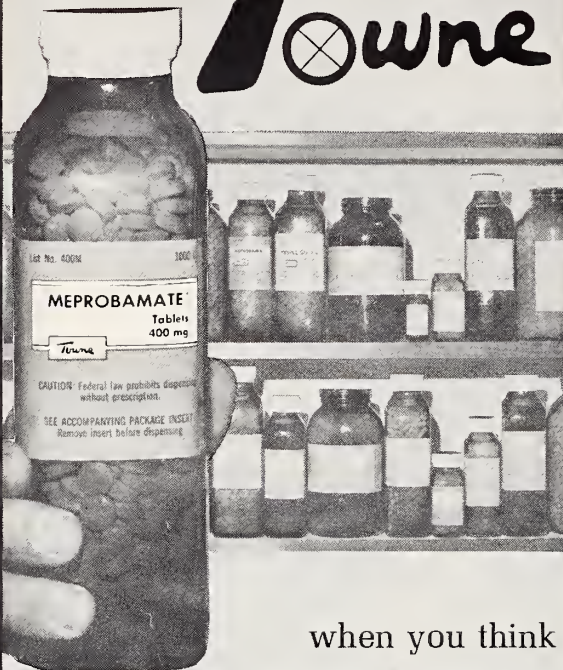
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Family Physician Has Key Role In Care of Mentally Retarded

(Continued from Page 43)

tional training—are readily available for the retarded.

In other words, mental retardation is not only a medical problem, it is also an "educational and social problem of vast dimensions," the report said.

"The nation, however, also possesses a substantial reservoir of knowledge and skill in this demanding field," it continued. "Could all this knowledge be put into effective use immediately, it is estimated that as much as half of all retardation might be prevented and the lives of the remaining victims rendered more productive and fulfilled."

It has been apparent for some years, Dr. Richmond noted, that the problems of the mentally retarded have "not received adequate attention."

But interest in mental retardation is now on the upsurge, he added, stimulated by the interest of the late President John F. Kennedy, congressional appropriations for building and expanding facilities and the increased activities of voluntary organizations.

"Now, with medical progress having dealt relatively effectively with the acute disorders of childhood, the time is ripe for renewed efforts in this field," he said.

That primary physicians, rather than the specialists in mental disorders, should spearhead this effort is due to what the report termed the "particularly effective position" of the primary physician.

It is the doctor in private practice—the general practitioner, the pediatrician, the internist—who sees children in their first years of life.

Thus, the primary physician often has an opportunity to identify mental retardation in a child years before it might otherwise be recognized.

Early diagnosis, in turn, means early help for the retarded child when chances of reversing retardation are usually at their best.

This is particularly true in what is termed "socio-cultural retardation." In such cases, the report said, "Enrichment of the child's environment begun early enough may save the child from a lifetime handicap."

"Mental retardation now poses to the primary physician what is in essence, a more complicated medical problem than many he may have had time and resources to attack before."

But it is a problem with which the primary physician can cope by expanding his knowledge and modifying the skills and techniques he uses with all cases of chronic illness, the report added.

"The primary physician faces a new challenge in retardation, not because the problem is new but because for the first time he has the necessary time and resources with which to confront it."

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Improved Physical Education Needed

Exercise can do more than merely build muscles. The right kind of exercises and games can help a child gain confidence, improve his skill in movement, and create interest in vigorous activity he can carry into adult life.

Regular exercise can also help to control obesity, delay degenerative disease, rehabilitate the ill or injured, and shorten recuperative periods.

This is why schools and colleges should offer a variety of activities in physical education programs, says the American Medical Association's Committee on Exercise and Physical Fitness.

The newly formed committee of physicians from throughout the nation, has issued the first in a series of reports on the value of physical activity and properly developed physical education programs.

"Students of both sexes need vigorous exercise," the report said. "Regular vigorous activity appropriate to age, sex, and health status is beneficial to everyone but a medically-excepted few. Continuing research shows that adequate exercise and sports activity contribute significantly to good health."

Even the handicapped can benefit from exercise, the committee said. Handicapped children should be encouraged to participate in games and exercises to the limit of their ability. Exercise not only speeds the rehabilitation of atrophied or unused muscles, but helps maintain organic fitness and gives a boost to the child's self-confidence, the report said.

"The development of emotional maturity can be aided by comprehensive physical education programs," the committee said. "Sports activities can help to fill a child's apparent need for adventure, train him to meet and accept challenges, teach him to accept limitations, and increase his self-esteem. As they gain skill and improve in fitness, boys and girls will want to test themselves under increasingly difficult competition."

There are problems, however, in developing adequate physical education programs. In some situations, the committee said, varsity sports programs are given priority in attention and resources over intramural and physical education programs.

"This should not be the case," said the report. "Each is an important part of the program and should share equitably in facilities and teaching personnel."

Each school is responsible for teaching the value and appreciation of physical fitness, the committee said. The group said decreases in behavioral problems and increases in intellectual efficiency can be expected if the school's physical education program is a good one.

Members of the AMA Committee on Exercise and Physical Fitness include J. Roswell Gallagher, M.D., Boston, Mass., chairman; Warren R. Guild, M.D., Boston; Theodore G. Klumpp, M.D., New York City; James C. H. Russell, M.D., Fort Atkinson, Wis., and Allan J. Ryan, M.D., Meriden, Conn.



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Dosage in adults, usually 1 tablet t.i.d.; young women, 1 tablet b.i.d.; children (school age), up to 1 tablet t.i.d.; children (pre-school age), ½ tablet b.i.d. Shows best results when administered with a high protein diet. Available as scored tablets of 2 mg. in bottles of 100.

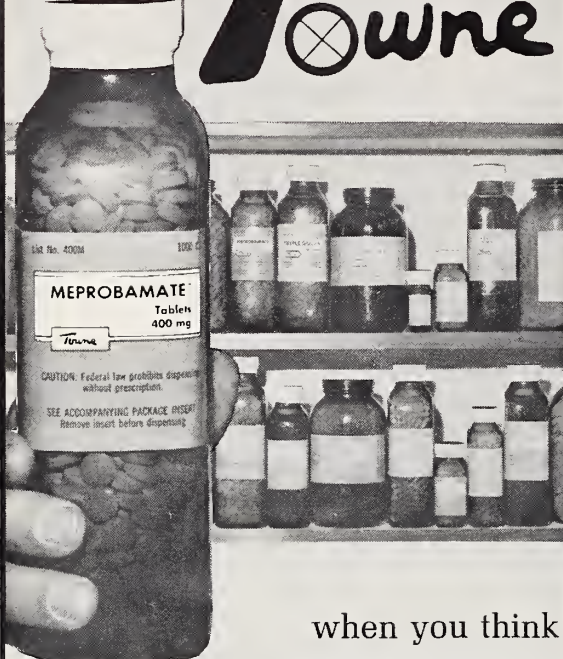
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Medicine's Mercifully Brief History

On a less-than-serious note, an article in the April 12 *Journal of the American Medical Association* summarizes "The Mercifully Brief History of Medicine":

"Medicine began with the dawn of history," writes author Richard Armour. "In fact, it began shortly before dawn, at about 3 a.m., when the first Stone Age doctor was routed from his bed by a patient who thought he was dying."

"Transportation being none too good (this being before the invention of the wheel), by the time the doctor arrived, the patient was well."

Armour romps through the rest of medicine's history with similar abandon. He is the author of the book, "Through Darkest Adolescence: With Tongue in Cheek and Pen in Checkbook," (McGraw-Hill, New York, 1963).

"During the Stone Age the most common complaints were gallstones, kidney stones, and stumbling over stones. Surgery was in its infancy, largely because of the difficulty of making an incision with a sharpened stone and of performing a suture with a stone needle."

"When a surgeon decided not to operate, everyone breathed a sigh of relief, especially the surgeon and, if he was still alive, the patient."

"Roman medicine made a great contribution in the field of sanitary engineering and public health," Armour said. "The Romans drained swamps, built aqueducts, constructed sewers, and killed off enough people in surrounding countries to keep cities from becoming overcrowded."

Medicine took an unexpected turn in the Middle Ages when it became affiliated with astrology, Armour said.

"No one would swallow a pill without first checking to see whether the stars were in a favorable position, and on a cloudy night this could be difficult."

During the modern era the progress of medicine has been rapid:

"In England, Joseph Lister made operations safer by getting surgeons to wash their hands. The practice spread to the U.S., where it was hailed by the manufacturers of soap."

"In France, Louis Pasteur discovered how to keep food from spoiling and thereby made it necessary to eat leftovers."

In recent years, there have been marvelous developments in medicine:

"Salk and Sabin have practically eliminated poliomyelitis, at least in those who are not too busy to drop in for the vaccine."

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BOOKS RECEIVED

Books received by CALIFORNIA MEDICINE are acknowledged in this column. Selections will be made for more extensive review in the interest of readers as space permits.

BRAIN TUMORS—Their Biology and Pathology—Second American Edition, based on the Fourth German Edition—K. J. Zülch, M.D., Professor of Neurology, University of Cologne, and Head, Department of General Neurology, Max Planck Institute for Brain Research. Translated by Alan B. Rothballer, M.D., M.Sc., Associate Professor of Neurological Surgery and of Anatomy, Albert Einstein College of Medicine, and Visiting Neurosurgeon, Bronx Municipal Hospital Center, New York, N.Y.; and Jerzy Olszewski, M.D., Ph.D., Professor of Neuropathology, University of Toronto, Toronto, Canada. Springer Publishing Company, Inc., New York, 1965. 326 pages, \$11.00.

CARING FOR YOUR DISABLED CHILD—Benjamin Spock, M.D., and Marion O. Lerrigo, Ph.D. The Macmillan Company, New York, and Collier-Macmillan Limited, London, 1965. 373 pages, \$4.95.

CITY PSYCHIATRIC—A novel by Frank Leonard; with a foreword by John Bartlow Martin. Ballantine Books, New York, 1965. 219 pages, 75 cents (paperback).

DANGEROUS COLD—Its Cures and Complications—Noah D. Fabricant, M.D., and Groff Conklin. The Macmillan Company, New York, 1965. 179 pages, \$3.95.

ELECTROPHYSIOLOGY OF THE HEART—Proceedings of an International Symposium on the Electrophysiology of the Heart, held in Milan on October 11-13, 1963, under the sponsorship of the "Istituto di Cardiologia Sperimentale." Edited by B. Taccardi, Director, Electrophysiological Laboratory, and G. Marchetti, Director, Laboratory of Hemodynamics, of the Istituto di Cardiologia Sperimentale, Milano, Italia. Organized by Simes Scientific Services. Pergamon Press, New York, 1965. 344 pages, \$15.00.

ENGLISH MEDICAL HUMANISTS, THOMAS LINACRE AND JOHN CAIUS—Logan Clendening Lectures on the History and Philosophy of Medicine: Twelfth Series—C. D. O'Malley. The University of Kansas Press, Lawrence, Kansas, 1965. 54 pages, \$2.00.

MEDICAL PARASITOLOGY—Second Edition—Edward K. Markell, Ph.D., M.D., Department of Internal Medicine, Permanente Medical Group, Kaiser Foundation Medical Center, Oakland, Calif.; Clinical Associate Professor of Preventive Medicine, Stanford University School of Medicine, Palo Alto, Calif.; and Marietta Voge, M.A., Ph.D., Associate Professor of Medical Microbiology, Department of Medical Microbiology and Immunology, School of Medicine, University of California, Los Angeles. W. B. Saunders Company, Philadelphia and London, 1965. 317 pages, \$8.50.

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NEW BOOK

ATLAS OF TECHNIQS IN SURGERY, in 2 vols. By John L. Madden, M.D. 2nd ed. 1138 pages. Illustrated. 1964. Appleton-Century-Crofts. Baxed set, \$45. Now in two volumes, this magnificent work has been expanded to include over 150 operative techniques, each depicted in detail with lavish illustrations.

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THANNHAUSER'S TEXTBOOK OF METABOLISM AND METABOLIC DISORDERS—Second Edition, completely revised—Edited by Nepomuk Zollner, Associate Professor of Medicine and Senior Research Assistant in Medicine, University of Munich, Germany. American edition translated and edited by Solomon Estren, M.D., F.A.C.P., Associate Attending Hematologist, The Mount Sinai Hospital; Associate Physician Hematology, Mother Cabrini Hospital, New York City; Attending in Hematology, Veterans Administration Hospital, Bronx, New York. Grune & Stratton, New York and London, 1964. 968 pages, \$19.75.

TOBACCO ALKALOIDS AND RELATED COMPOUNDS—Proceedings of the Fourth International Symposium held at the Wenner-Gren Center, Stockholm, February 1964—Edited by U. S. von Euler. A Pergamon Press Book, The Macmillan Company, New York, 1965. 346 pages. (No price quoted.)

TRAUMATIC CERVICAL SYNDROME AND WHIP-LASH—Charles W. Goff, M.D., Consultant Orthopaedic Surgeon, St. Francis Hospital, Hartford, and Newington Hospital for Crippled Children, Newington; Associate Clinical Professor of Orthopaedic Surgery, Yale University School of Medicine, Hartford, Connecticut; John H. Aldes, M.D., Director, Ben R. Meyer Rehabilitation Center and Orthopaedic Surgeon, Cedars of Lebanon Hospital, Cedars-Sinai Medical Center, Los Angeles; Chairman, Governor's Medical Committee for Employment of the Handicapped, State of California; and John O. Alden, M.D., Associate Medical Director, Aetna Life Insurance Company, Hartford, Connecticut. With a Preface by the Honorable M. Joseph Blumenfeld, Judge of the United States District Court, District of Connecticut. J. B. Lippincott Company, Philadelphia & Montreal, 1964. 128 pages, \$5.00.

VISUAL FIELDS, THE—A Textbook and Atlas of Clinical Perimetry—Second Edition—David O. Harrington, A.B., M.D., F.A.C.S., Clinical Professor of Ophthalmology, University of California School of Medicine, San Francisco, Calif.; Consultant in Ophthalmology, Veterans Administration Hospital, Fort Miley, San Francisco, Calif. The C. V. Mosby Company, Saint Louis, 1964. \$16.00.

WHITBY AND HYNES' MEDICAL BACTERIOLOGY—Including Elementary Mycology and Parasitology—Eighth Edition—Martin Hynes, M.D. (Camb.), F.R.C.P. (Lond.), F.C.Path., Clinical Pathologist, The Royal Northern Hospital; Pathologist, King Edward VII's Hospital for Officers and Manor House Hospital. Grune & Stratton, Inc., 1965. 495 pages, \$7.50.

WITH EVERY BREATH YOU TAKE—The Poisons of Air Pollution, How They Are Injuring Our Health, and What We Must Do About Them—Howard R. Lewis, Public Health Consultant. Preface by Reginald H. Smart, M.D., Clinical Professor of Medicine, University of Southern California; Consultant, Air Pollution Medical Advisory Committee, U.S. Public Health Service; Foreword by Morris B. Jacobs, Ph.D., P.E., Associate Professor, School of Public Health, Columbia University; Former Director, Bureau of Laboratory, Department of Air Pollution Control, City of New York. Crown Publishers, Inc., New York, 1965. 322 pages, \$5.00.

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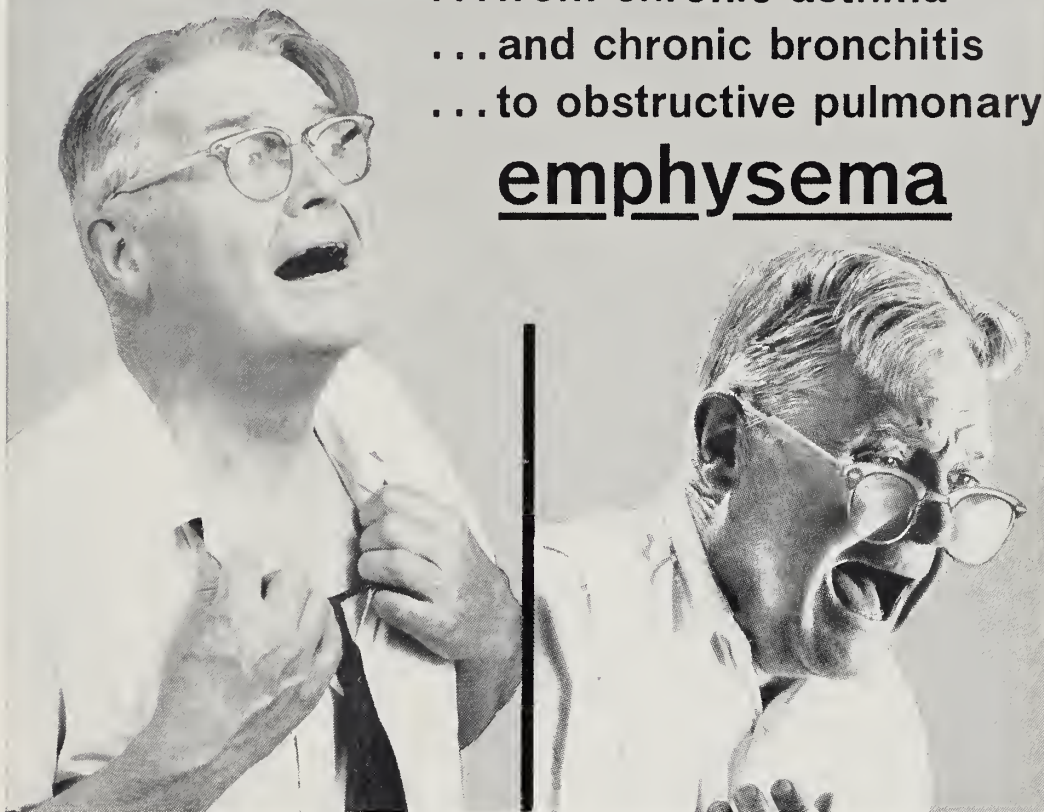
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1. Boren, H. G.: M. Clin. North America 43:48 (Jan.) 1959.

2. Jackson, R. H., et al.: Dis. Chest 45:75-85 (Jan.) 1964.

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AMA Awards Nutrition Fellowships

Ten medical students have received fellowships for research in clinical nutrition, given by the American Medical Association Council on Foods and Nutrition.

This year's awards, of \$600 each, were given in honor of William J. Darby, M.D., winner of the 1964 Joseph Goldberger Award in Clinical Nutrition. Each fellowship goes to a medical student, and his research, conducted during the non-academic portion of the school year, is supervised by a senior investigator.

The students, senior investigators, and their topics are:

- Donald H. Kearns and Raymond M. Kivel, M.D., Stanford University School of Medicine, Palo Alto, California, "The Immunological Response of the Gastrointestinal Tract to Alimentary Antigens in Experimental Animals."

- Murray Johnstone and Robert E. Shank, M.D., Washington University School of Medicine, St. Louis, "Study of Protein and Caloric Malnutrition in Infants and Young Children in Peru."

- Hazel Carol Jefferies and Roland B. Scott, M.D., Howard University College of Medicine, Washington, D.C., "Iron Deficiency Anemia in Anemic Negro Adolescents."

- Ralph Lenz and Arthur B. French, M.D., University of Michigan Medical School, Ann Arbor, "Intestinal Absorption of Lipid and Carbohydrate."

- Sharon Agree and James M. Orten, Ph.D., Wayne State University College of Medicine, Detroit, "A Study of Factors Which Control the Formation of Ketone Bodies in Mammalian Liver."

- Stanley Millman and Dr. Orten, "Possible Explanations for Increased Urinary Excretion of B-aminoisobutyric Acid."

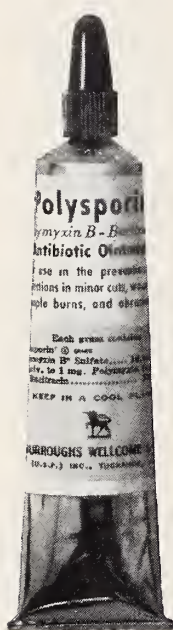
- Lynn Luther and C. E. Butterworth, Jr., M.D., Medical College of Alabama, Birmingham, "A Study of Folic Acid Inhibitors in Natural Material."

- Glenn H. Booth, Jr., and William J. Darby, M.D., Ph.D., Vanderbilt University School of Medicine, Nashville, "Zinc Metabolism: Relationship of Parasitism to Zinc Deficiency, Cairo, Egypt."

- Stephen Katz and Grace A. Goldsmith, M.D., Tulane University School of Medicine, New Orleans, "Nutritional Status of Children of the Junior Staff at Makerere Medical School, Kampala, Uganda."

A student to be named and Frederick J. Stare, M.D., Ph.D., Harvard Medical School, Boston, "Studies on the State of Nutrition in the Host in Parasitic Relationship: Gastrointestinal Disease, Malabsorption."

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An Effective Measles Vaccine for Infants

Infants can be effectively vaccinated against measles as early as three to six months of age, says a study published in the March 29 *Journal of the American Medical Association*.

Such a vaccination, done with "killed virus" vaccine, increases somewhat an infant's resistance to measles and begins vaccination three to six months earlier than customary.

The protection, however, is only partial. More complete immunization usually can be given later by vaccination with live-virus type vaccine at age nine months to one year.

The report was prepared by Samuel Karelitz, M.D., Priya Kanchanavatee, M.D., Mitsuko Arai, M.D., and Hedda Acs, M.D., all of Long Island Jewish Hospital, Hyde Park, N.Y., and Ann Schlusenderberg, Sc.D., of the Department of Epidemiology and Public Health, Yale University School of Medicine, New Haven, Conn.

They found that of 165 infants studied, those given the early, killed-virus vaccinations showed significantly higher resistance to measles and had fewer unfavorable reactions to the later measles vaccination than did a control group of infants. The reactions include rash and fever, common among infants given live-virus measles vaccination without earlier vaccinations.

A newborn child is usually protected against measles for the first months following birth by antibodies transferred from his mother's body during gestation. These protective antibodies gradually disappear.

Measles then becomes a "relatively frequent and severe disease in the second half-year (of life), when it accounts for considerable morbidity (disease) and mortality in many countries," the report said.

The early vaccinations thus are to give protection in the three to six-month period between the decline of newborn resistance to measles and vaccination for more lasting protection, beginning at age nine months to one year.

Longer-term vaccination with attenuated (partly killed) live-virus vaccine cannot be given earlier in an infant's life because the live virus probably would be neutralized by the infant's maternal antibodies, which are then still at work.

Live-virus vaccine, when effective, offers immunity for an indefinite period, which presumably may be lifelong in some persons.

The investigators administered the killed-virus vaccine at the same time customary diphtheria, pertussis and tetanus (DPT) injections were given. No combination DPT-measles vaccine is yet available. Infants were given one to three injections, depending upon age; younger infants got more vaccinations.

Whether the early measles vaccination comes into

(Continued on Page 33)

An Effective Measles Vaccine for Infants

(Continued from Page 32)

common use may depend upon cost and convenience of the vaccine, as related to the short-term risk of measles infection. Wide usage may depend upon development of an easily administered combination DPT-measles vaccine, and its cost.

At issue is temporary measles protection over a relatively short (three to six months) period of the infant's life, during which he continues to have some "passive resistance" to measles, acquired at birth.

An effective immunization program against measles, the report said, can include early vaccination at age three to six months with killed-virus vaccine, followed at age nine months to one year with live-virus vaccine. Such a program reduces the severity of unfavorable reactions to the live-virus vaccine.

Largest AMA Convention in History

The American Medical Association's 114th annual convention, June 20-24, in New York City is expected to be the largest in AMA history.

An attendance of 69,500, including 25,000 physicians, is expected. The largest previous AMA convention was in 1961 in New York City when 46,679 attended, including 23,083 physicians.

A diverse scientific program covering virtually every medical specialty will be presented, according to Gilson Colby Engel, M.D., Philadelphia, chairman of the AMA's Council on Postgraduate Programs.

Dr. Engel said the 1965 program will provide "outstanding educational opportunities for members of all fields of medicine, including specialists and general practitioners."

Six general scientific sessions will be coordinated by secretaries of various AMA specialty sections. Topics include hearing, adverse reactions, non-narcotic drug addiction, metabolism in growth development and aging, diagnostic cytology, and organ transplantation.

Another highlight will be the fifth Multiple Discipline Research Forum, presented this year as a program of the AMA Section on Experimental Medicine and Therapeutics. Edwin H. Ellison, M.D., Milwaukee, again is serving as forum chairman. Dr. Ellison said 60 reports based on research being done throughout the country will be presented.

AMA's other scientific sections also will present programs for physicians in their specialties. The more than 350 scientific exhibits will be housed in the New York Coliseum, which also will be the site of many scientific sessions as well as an extensive medical motion picture and television program.

The AMA's policy-making House of Delegates will meet in the Americana Hotel.

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VIROLOGY

A Report of Presentations Featured at the 94th Annual Session of the California Medical Association

■ *With virology as the theme of its three general meetings, the 94th Annual Session of the California Medical Association was addressed by outstanding experts on various aspects of this engaging subject. The following report of highlights of the speakers' presentations was written at the editor's behest by Warren Levinson, M.D., a postdoctoral fellow at the Virus Laboratory, University of California, Berkeley.*

"DR. GORDON, what is a virus?" With this question, moderator Harold Simon¹ opened the first session of a symposium on virology held at the annual meeting of the California Medical Association on March 28-30, 1965.

"A virus is a particle composed of an inner core of genetic material, either desoxyribonucleic acid (DNA) or ribonucleic acid (RNA), surrounded by an outer protective coat of protein," answered Dr. Irving Gordon.² Viruses vary greatly in their size, shape and chemical composition from the very small, spherical poliovirus to the almost visible, cuboidal smallpox virus. In contrast to bacteria, viruses contain only one type of nucleic acid, do not reproduce by binary fission and do not possess an energy-producing system.

Because viruses lack an energy supply, they must reproduce inside a cell. The step-by-step process by

which viruses enter and reproduce within a cell has been well characterized. In the first step, the virus adsorbs to the surface of a susceptible cell. This step is of great importance in determining natural immunity to viral disease. If the virus and the cell membrane do not contain complementary receptor sites, then adsorption does not occur, the cell does not become infected and no disease results.

Following adsorption, the virus penetrates the cell membrane. After this step, the virus is no longer susceptible to inactivation by antibody in the serum. Once inside the cell, the virus sheds its protein coat, thereby exposing its genetic material. The DNA of the virus then acts to reproduce more of its own DNA and also to produce messenger RNA. Messenger RNA carries the genetic message from the DNA to the ribosomes where virus-specific proteins are synthesized. After many copies of the DNA and protein are made, the virus is assembled and released from the cell. Some viruses contain RNA as the genetic material in which the RNA

¹Harold Simon, M.D., Palo Alto.

²Irving Gordon, M.D., chairman, Department of Medical Microbiology, University of Southern California School of Medicine, Los Angeles.

probably serves as the messenger for protein synthesis directly.

The response of the cell to virus infection is varied. Some cells die, some are latently infected and some become malignant.

**DR. RENATO
DULBECCO**

Which result occurs is determined by the properties of both the virus and the cell. Renato Dulbecco, M.D.³ discussed two important features of the growth of viruses which determine to a great extent the fate of the cell. One feature is the ability of the virus to control cell functions. Viruses which cause cell death, such as the poliomyelitis virus, can stop the normal cellular processes and utilize cell materials and structures to produce more virus. For example, poliovirus infection causes the cell to stop producing cellular RNA, which soon results in an inhibition of the synthesis of proteins. It is the cessation of cell functions which leads to the ultimate death of the cell.

Certain viruses, such as the herpes simplex virus, do not always kill the cell. They have the capacity to enter into a latent state during which the cell apparently functions normally. The precise location of the virus within the cell during this time is unknown. In certain circumstances, the latent phase ends, the virus preempts the cell structures, and the cell is fated to die. Another feature is the ability of the virus to undergo genetic changes by the processes of mutation and recombination. By mutation, which is a change in the genetic code in the DNA, and by recombination, which is the exchange of pieces of DNA between two viruses, the virulence and host range of a virus can be altered.

Viral Carcinogenesis

The death of a cell due to virus infection is readily explainable in terms of the growth processes of the virus. The production of a malignant lesion as a result of virus infection is a much more complex phenomenon.

Dr. Hilary Koprowski⁴ described the interaction of normal human cells in tissue culture with a tumor virus, SV40. SV40 (simian virus 40) is a virus which was isolated from monkey kidney cells and was found to produce sarcomas in hamsters. The early Salk poliomyelitis vaccine, made from poliovirus grown in monkey kidney cells, was contaminated with SV40.

During the first four days after infection with SV40, a high proportion of the cells are killed. Within two to four months a rapid proliferation of

the remaining cells occurs, many of which are malignant. This stage lasts four to eight months, then almost the entire culture degenerates. Following this period of "crises," the malignant cells which survive grow rapidly and remain viable. This sequence illustrates that a tumor virus can produce cell death as well as malignant change and that the transformation of normal cells to malignant ones occurs over a period of time marked by several major stages. The finding that adenovirus, a virus implicated in epidemic respiratory disease, can produce sarcomas in hamsters is additional evidence of the ability of a virus to cause both cell death and malignant change.

While the gross features of the production of malignant cells vary from one tumor virus to another, some of the intracellular changes are similar for many tumor viruses. Soon after infection, a new protein is formed which can be detected by complement fixation tests. This new protein is cellular in origin and not one of the viral antigens, yet it is different for each type of tumor virus. The outer surface of the cell is altered also, and a new cell-specific protein appears. The role of these new proteins in the malignant process is unknown.

In addition to this change in the cell surface, the normal cell property of contact inhibition is lost. The movement of a normal cell is inhibited on contact with another cell but the movement of a malignant cell is not. The absence of contact inhibition in malignant cells may be important in the process of metastasis. Other important changes seen in virus-induced malignant cells are chromosomal aberrations such as the breakage of chromosomes and increases or decreases in the number of chromosomes.

None of these changes has been implicated directly in the production of a malignant cell. In fact, even the presence of the virus is not necessary for the preservation of the malignant state, as many of the virus-transformed cells contain no infectious virus. For example, the Rous sarcoma virus is a defective virus that transforms a fibroblast into a sarcoma cell without the production of virus. In order for progeny viruses to be formed, the sarcoma cell must be superinfected with one of the chicken leukemia viruses, which then supplies the functions missing in the defective Rous sarcoma virus. Sarcoma cells produced by SV 40, also do not produce virus. However, early in infection, before the malignant transformation has occurred, SV 40-infected cells do produce virus. There is no evidence for defectiveness or helper viruses in SV 40. Attempts to identify a portion of the virus-genetic material persisting within the malignant cell have failed. The problem of the basic mechanism by which a virus makes a cell malignant remains unsolved.

³Renato Dulbecco, M.D., resident fellow, Salk Institute of Biological Studies, San Diego.

⁴Hilary Koprowski, M.D., director of the Wistar Institute of Anatomy and Biology, Philadelphia.

Interferon

The infected cell and surrounding tissue is not entirely at the mercy of the virus. In response to the presence of a virus, the cell produces a protein which has the property of inhibiting the growth of viruses in other cells. The description of this material, called interferon, and of its action was made by Dr. Robert Wagner.⁵ Interferon is distinct from antibody. Interferon is not a globulin protein, is not specific for any virus, does not react with the virus outside the cells, and is produced by the infected cells themselves early in infection. Antibody, by contrast, is a globulin and is specific. It reacts with the virus itself and is made by plasma cells late in infection.

The action of interferon is to inhibit the growth of the virus within the cell, probably at the level of the replication of the viral genetic material. The range of viruses susceptible to interferon is broad and includes vaccinia, influenza, mumps, poliovirus and Cocksackie viruses. The virulence of a virus may be dependent upon its failure to induce the production of interferon. For example, the finding that a strain of virulent poliovirus does not cause interferon production, whereas an avirulent strain does, suggests that a virus is virulent when it does not stimulate the production of interferon.

The success of interferon's ability to prevent virus growth in tissue culture lead to its trial as a protective agent against disease in animals. The results have not been uniformly successful. Protection was satisfactory in some test systems and borderline in others. The extension of this work to disease prevention in humans appears to be limited. The biggest difficulty is that interferon must be administered before viral infection to be effective. However, most patients with viral disease do not enter the physician's office until symptoms are present. Since the onset of symptoms is usually concurrent with high titers of virus and large numbers of infected cells, it is felt that the administration of interferon at that time would be of little value. Other problems, such as the difficulty of making large amounts of interferon and the inability of chemists to synthesize a large protein molecule, make the widespread use of interferon in the treatment of virus disease unlikely.

Chemotherapy of Viral Diseases

The search for a treatment for viral disease is not limited to interferon. Chemotherapeutic drugs, although few in number at present, promise to have

a prominent role in the prevention and treatment of virus diseases in the future. This was the opinion of Dr. Igor Tamm⁶ as he presented the latest information on the chemical inhibitors and their use.

The theoretical basis for the action of a drug lies in its ability to inhibit a specific process necessary for virus growth and not affect the cell. Although the intracellular functions of both the virus and the cell are quite similar, there are sufficient differences to allow selective inhibition of some viruses.

One of the best known drugs is iododeoxyuridine (IDU). IDU, an analogue of thymidine which is a constituent of DNA, is an effective inhibitor of herpes simplex virus. The presence of IDU within a herpes-infected cell results in abortive growth of the virus and the spread of the infection is thereby limited. Whether the mode of action of IDU is the inhibition of one of the enzymes necessary for the synthesis of viral DNA or the inhibition of the function of the viral DNA following the incorporation of IDU into its structure, is unknown.

Another drug now in use, which inhibits an intracellular specific virus process, is isatin β -thio semicarbasone. This drug is effective against the pox viruses, specifically smallpox. It acts to prevent the formation of several viral proteins and a failure of assembly of the virus components into an intact particle results.

Three other chemicals which have potential use as therapeutic agents were discussed. Two of them, hydroxybenzyl benzimidazole and guanidine hydrochloride selectively inhibit the replication of the RNA of many enteroviruses, such as polio and Cocksackie viruses. The third, adamantanamine, inhibits influenza and measles viruses by preventing penetration into the cell.

The clinical effect of the previously mentioned drugs on the prevention and treatment of viral diseases were discussed by Dr.

DR. C. HENRY KEMPE C. Henry Kempe.⁷ Using the N-methyl substituted isatin

β -thio semicarbasone, studies in India under the auspices of the World Health Organization demonstrated that this drug gave definite protection to those exposed to smallpox. The effectiveness of the semicarbasones in the therapy of smallpox has not been established. However, Dr. Kempe reported the success of a short course of two doses coupled with removal of the virus in the scab in the treatment of vaccinia gangranosum. It should be noted that semicarbasone will not inhibit the vaccination procedure.

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⁷C. Henry Kempe, M.D., professor and chairman, Department of Pediatrics, University of Colorado School of Medicine, Denver.

⁵Robert Roderick Wagner, M.D., professor of Microbiology, head of the Virology Division, The Johns Hopkins University School of Medicine, Baltimore.

Because the drug interferes only with the assembly of the virus particle, the viral proteins (antigens) are still produced and a satisfactory immunity is achieved.

Iododeoxyuridine has been demonstrated to be clinically effective against keratitis caused by herpes simplex virus. One problem that has arisen is the finding of strains of herpes virus which are resistant to the drug. Adamantanamine, which is effective in tissue culture, is of potential clinical use but not enough data are available as yet. Hydroxybenzyl benzimidazole and guanidine hydrochloride gave disappointing results in trials with enterovirus infection in monkeys.

It was the opinion of both Dr. Tamm and Dr. Kempe that the chemotherapeutic approach was in its infancy and that by continued basic research and careful clinical testing, antiviral drugs will be of great importance in the prevention and treatment of viral diseases.

Immunization

The administration of vaccines to produce active immunity is the best method of prevention of viral disease at the present time, said Dr. Paul Wehrle.⁸ Most admissions to the pediatric service were due to infectious disease, bronchiolitis, croup and pneumonia in that order. A large portion of those infections are potentially preventable through the use of vaccines.

With the advent of tissue culture techniques, the isolation and production of viruses in large quantities has made possible the development of vaccines for several diseases such as poliomyelitis, mumps, influenza and measles.

Administration of the live poliomyelitis vaccine has been very effective. A 1,000-fold drop in the number of cases since 1955 has been observed in California. The contamination of some of the early poliomyelitis vaccine preparations with SV 40, a virus which is capable of producing sarcomas in mammals, has not led to any harmful effects up to the present. The overall risk of contracting poliomyelitis from the vaccine is less than one in a million. However, among middle-age adults, there is a greater risk of vaccine-induced disease; hence, for adults, the administration of live vaccine should be restricted to those who are in the Armed Forces, are in areas of endemic poliomyelitis or are traveling outside the country.

The first two types of measles vaccines were relatively unsatisfactory. The vaccine made from inactivated virus induced an immunity of only short

duration. The first vaccine made from attenuated virus produced many side effects such as fever, rash and convulsions and had to be given in conjunction with gamma globulin. Further attenuation, by many passages through the chick embryo, led to the development of an effective vaccine with few side effects. Maximum effectiveness is obtained when the vaccine is given after the recipient is one year of age, for in younger infants maternal antibodies interfere with virus multiplication.

Although influenza and adenovirus vaccines have been produced, there is still a need for effective vaccines for the control of other viruses of respiratory disease, particularly the respiratory syncytial and parainfluenza viruses.

The isolation of the rubella virus has made the development of a vaccine a distinct possibility. Dr.

DR. DOROTHY M. HORSTMANN Dorothy Horstmann⁹ placed emphasis on the need for immunization of all girls before

they reach the child-bearing age in order to prevent the congenital anomalies which occur in 15 to 20 per cent of pregnancies when German measles develops during the first trimester. The administration of gamma globulin to pregnant women who have been exposed to the rubella virus has been of questionable effectiveness, for while the gamma globulin may suppress the clinical manifestations of the disease, it is felt that infection of the mother and fetus still occurs.

Laboratory Diagnosis

The diagnosis of a viral cause for many clinical syndromes is often difficult to make without the aid of the laboratory, said Dr.

DR. ROBERT L. MAGOFFIN Robert Magoffin.¹⁰ Many infections of the upper and lower

respiratory tract and of the central nervous system that are caused by viruses cannot be diagnosed solely on clinical grounds. There are now laboratory tests which are capable of distinguishing the agents of respiratory diseases such as adenovirus, influenza, mumps, measles and rhinoviruses, of enteric and central nervous system diseases such as poliomyelitis. Coxsackie and ECHO viruses, and of skin diseases such as pox and herpes viruses.

These tests are based upon three major approaches. One is the direct microscopic observation of typical inclusions or of specific fluorescent antibody staining. Another approach is the isolation and identification of the virus in tissue culture in animals or embryonated eggs. The third approach

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¹⁰Robert L. Magoffin, M.D., assistant chief of the Viral and Rickettsial Disease Laboratory, California State Department of Public Health, Berkeley.

⁸Paul F. Wehrle, M.D., chief physician, Children's Division, University of Southern California School of Medicine, Los Angeles.

is the demonstration of antibodies in the patient's serum by serological methods such as complement fixation and neutralization.

For the laboratory procedures to be effective, Dr. Magoffin suggested that particular attention be paid to the collection of the appropriate specimens, to obtaining the specimen early in the illness, to proper shipment of the specimen, and to providing the laboratory with sufficient clinical information to insure the use of the appropriate diagnostic procedure. It is important, also, to obtain a convalescent serum sample in order to properly evaluate the presence of a titer in the serum sample taken early in the disease and to determine whether a rise in the titer has occurred during the course of the disease.

Respiratory Diseases

Turning to a discussion of respiratory disease, Dr. George Jackson¹¹ emphasized the many different microorganisms which have been implicated. True viruses, Bedsonia ("viruses" of the psittacosis group), rickettsiae and mycoplasmae (PPLO) are known to cause respiratory diseases. Among the true viruses, influenza, parainfluenza, respiratory syncytial virus, adenovirus, reovirus and rhinovirus are included.

As demonstrated by volunteer studies, a specific immunity against respiratory viruses which lasts almost four years can occur. However, the association between clinical disease, virus isolation and antibody titer is often difficult to make. For instance, several respiratory viruses can be isolated from nasal secretions, which makes it difficult to associate a definite agent with the disease. Also, virus can be isolated from persons not clinically ill and, in some cases, an antibody rise may be seen but the virus cannot be isolated. In view of these difficulties, it is felt that the best indicator of viral respiratory infection and of its causative agent is a rise in antibody titer with accompanying immunity to reinfection.

Viral Hepatitis

Continuing the discussion of viral disease, Dr. Robert Ward¹² presented current information on the status of viral hepatitis. Since the virus of neither infectious hepatitis nor serum hepatitis has been isolated, quantitative laboratory studies cannot be performed and vaccines cannot be prepared. Another complicating factor is the lack of

a susceptible laboratory animal; only humans can be used for experimental work.

Utilizing volunteers, it was demonstrated that virus can be found in the blood as early as 12 days after infection. Virus can be isolated from the stool at 25 days, but shortly after jaundice appears, virus can no longer be isolated. Apparently healthy people can, therefore, act as vectors of the disease.

Gamma globulin given in a large dose (0.06 ml per pound of body weight) will prevent the jaundice associated with infectious hepatitis, but will not prevent infection with the virus. Using liver function tests as the criteria for infection, no difference was observed between a group of persons who received gamma globulin and a group who did not. The mechanism by which gamma globulin suppresses jaundice is unknown.

Second attacks of infectious hepatitis occurred in approximately 5 per cent of the volunteer population. Speculations as to the possible explanation of these recurrences involved reinfection with different immunological types, reinfection with an overwhelming dose and the possibility of a defective immune response.

Dr. Horstmann, in addition to pointing up the need for a rubella vaccine, described some aspects of the spread of the disease. German measles is highly contagious and inapparent infections outnumber those in which a rash appears. For this reason, exposure to the virus alone constitutes a hazard to the fetus. Infection of the mother can result in chronic infection of the fetus, as virus has been isolated from placental and fetal tissue following induced abortion. Also, virus has been isolated for several months after birth from infants with and without congenital anomalies.

"New" Viruses

During the past decade, hundreds of viruses have been isolated which had never been characterized before. Many of these are types and sub-types of the viruses which cause acute respiratory illness. Dr. Clayton Loosli¹³ cited the 30 antigenic types of rhinoviruses, the over 20 types of adenovirus and respiratory syncytial virus as examples. These "new" viruses are responsible for "old" common respiratory diseases which account for a significant amount of the death, disability and loss of school and work time among both children and adults. The magnitude of this problem demands that methods for the prevention and treatment of these diseases be developed as soon as possible.

WARREN LEVINSON, M.D.

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¹²Robert Ward, M.D., physician-in-chief, chairman, Department of Pediatrics, University of Southern California School of Medicine, Los Angeles.

¹³Clayton G. Loosli, M.D., Hastings Professor of Medicine, University of Southern California School of Medicine, Los Angeles.

Viruses and Cancer

ROBERT M. MCALLISTER, M.D., *Los Angeles*

■ The answer to the important question, "Do viruses play a role in human cancer?" is still unknown. Although many scientists think that they may play a role, straightforward attempts to isolate human tumor viruses in animals or in tissue cultures have failed. Possibly the most sensitive test object, newborn human infants, of course cannot be used as test objects, and this may explain the failure to isolate human tumor viruses. At present, it would appear that the best means of tackling the problem of viral-induced carcinogenesis is to study the basic characteristics of known tumor viruses and the basic aspects of their interactions with cells. Both RNA-containing and DNA-containing viruses, two obviously different classes of virus, can cause cancer and therefore both classes must be studied in order to obtain a complete picture of the role of viruses in causing cancer in animals and cell transformation *in vitro*. Such basic studies already have yielded information of great importance to general biology.

A number of exciting developments have occurred in the area of virus-induced cancer. One of these is the oncogenic capacity in hamsters of certain human adenoviruses, and an intensive probe of their possible role in human cancer is in progress. Another is the detection by electron microscopy of virus-like particles in the tissues and serum of patients with leukemia.

Rigid criteria have been suggested to establish etiologic significance of viruses recovered from human cancer tissues and of the virus-like particles observed by electron microscopy in serum or malignant tissues from cancer patients.

If viruses are eventually found to play a role in human cancer, then perhaps the disease can be prevented by vaccines and treated with antiviral substances.

THE POSSIBILITY that viruses play a role in the etiology of certain cancers of man has been discussed recently in a number of excellent reviews.^{4,26,28,41,44} The purpose of this review will be (1) to outline the factors that have led to the current interest in the virus theory of cancer, (2) to describe the physical and chemical properties of known tumor viruses as well as their ability to cause cancer in intact animals and malignant transformation of cells in vitro, (3) to describe the new developments in the search for human tumor viruses, (4) to discuss the problems of establishing etiologic significance of isolates from human cancer tissue, and (5) to discuss measures that might be useful in the prevention and treatment of virus-induced cancer.

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Figure 1.—Electron micrograph that illustrates the cubic symmetry of human adenovirus particle. Courtesy of Dr. R. Horne (J. Mol. Biol. 1:84, 1959).

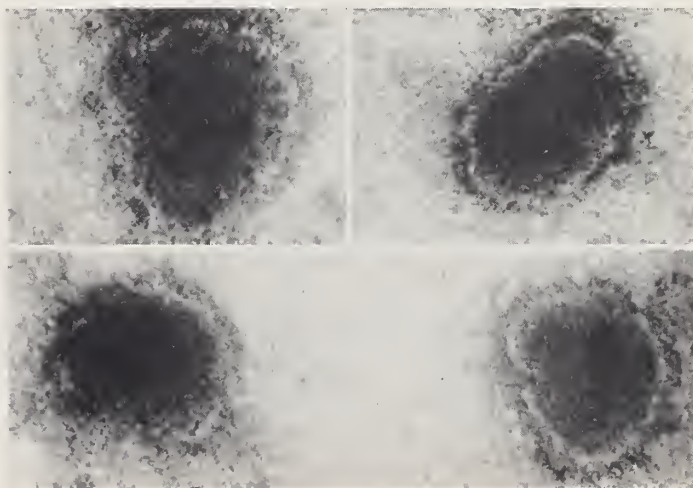


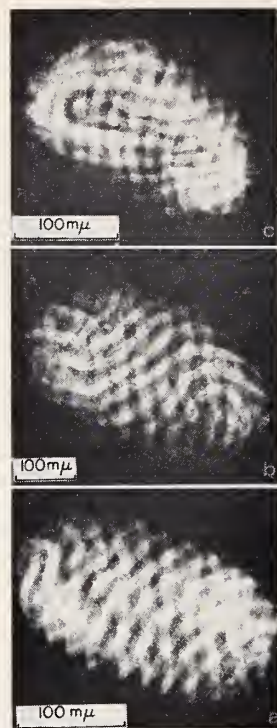
Figure 2.—Electron micrograph that illustrates the helical symmetry of avian myeloblastosis virus particles. Courtesy of Dr. K. O. Smith (J. Nat. Cancer Inst. 33:557-570, 1964).

Historical Background

By the end of the 19th century, several similar theories of the cause of cancer had evolved. These suggested that an internal change took place in the cell that allowed it to escape from the normal growth-regulating mechanisms. In 1903 Borrel¹⁰ proposed the virus theory of cancer. He reasoned that viruses may infect cells and induce a proliferative effect without causing cell death. The resulting virus-cell complex would then multiply indefinitely and induce unregulated cell growth that resulted in cancer. Five years after Borrel proposed his theory, the first tumor virus, an avian leukemia virus, was discovered. Thereafter, a number of other factors, such as chemical carcinogens, genetic background, hormones and x-rays, were found to play an etiologic role in animal cancer. Finally, in one tumor, mammary cancer in mice, it was found that clinical disease results from the interaction of three etiologic factors: genetic background, hormones and a virus.

Ever since Borrel proposed his theory, investigators have searched for viruses in animal and in human cancer material. While those who sought cancer viruses of animals have been highly successful; those seeking human cancer viruses have been unsuccessful. The reason for this discrepancy is unknown; however, investigators dealing with animals could inoculate the cancer tissue obtained from the animals with tumors into animals of the same species, including newborn animals. This technique proved highly successful for the isolation of animal cancer viruses. Obviously such a technique would not be justifiable in human newborns for although human cancer material has been inoculated into human beings, these have, in general, been elderly persons who already had some form of malignant disease.

Figure 3.—Electron micrograph that illustrates the complex symmetry of orf virus particle. Courtesy of Dr. J. Nagington (Virology, 23:461-472, 1964).



Why Are More Investigators Currently in Quest of Human Cancer Viruses than Ever Before?

In view of the multiple factors that can cause cancer and the failure to find human cancer viruses, one might wonder why interest in the virus theory has had a major revival. First, an ever-increasing number of animal cancers have been discovered to be a response to a virus infection.²⁶ These include the avian and murine leukemias, rabbit papilloma-carcinoma, rabbit fibroma and myxoma and murine mammary carcinoma. Bovine ocular carcinoma, canine mast cell sarcoma and sheep adenomatosis are less definitely associated with viral infections. In addition, certain viruses (polyoma virus of mice, SV40 of monkeys and adenovirus types 3, 7, 12 and 18 of man)* can induce cancer in certain rodents, but what, if any, oncogenicity properties they have in the host of origin is unknown at present. Second, virus-like particles have been demonstrated by electron microscopy in precancerous and cancerous tissues of man¹⁶ and in the serum of patients with leukemia.^{2,11,15,39} Third, the arbitrary categorization of viruses into two groups, acute infectious disease-producing viruses on the one hand and tumor viruses on the other, is no longer tenable. Tumor viruses are similar to other viruses in physical and chemical properties, in the type of effect they can cause in infected cells and in mode of transmission. The fifth basis for interest in viral etiology of human cancer lies in certain

epidemiologic data. The most interesting example is Burkitt's African lymphoma, which affects children of both sexes and several races in Africa and New Guinea.¹² The lymphoma is geographically limited in occurrence to areas in which the climatic conditions favor continuous breeding of mosquitoes, and it has been suggested that the tumor may be caused by a mosquito-born virus, much as rabbit myxomatosis and rabbit fibromas are caused by viruses that are spread by mosquitoes. Additional epidemiologic evidence is the observation of clusters of cases of human leukemia,²⁴ the development of tumors after smallpox vaccination, after herpes simplex and herpes zoster infection, and the development of testicular tumors after mumps and rubella orchitis.²⁶ The sixth basis is the increasing amount of funds that have become available for biological research, including cancer research. Stimulated in part by the isolation of polioviruses in tissue culture and the subsequent development of the poliovaccines, other viruses have been sought for and isolated in tissue culture systems. These include the viruses that cause German measles and the common cold (53 virus serotypes have been isolated to date) that could not be isolated in experimental animals or in embryonated eggs. Seventh, the success now being achieved in the field of prophylaxis against viral diseases, for instance poliomyelitis and measles, provides a potent stimulus to determine whether viruses play a role in human cancer with the hope that vaccines made of such viruses might be useful in the prevention of cancer.

What Do Known Tumor Viruses Look Like and of What Are They Composed?

Tumor viruses are not all alike but differ considerably from one another in physical and chemical properties. As do all known viruses, tumor viruses have one of three types of physical structure: cubic symmetry, helical symmetry or complex symmetry. Figures 1 to 3 illustrate these three types of symmetry. The chemical components of all known viruses consist of nucleic acids, either desoxyribonucleic acid (DNA) or ribonucleic acid (RNA) and protein. In addition, some viruses contain lipid. Table 1 summarizes the physical and chemical properties of the known tumor viruses. Several points concerning the nucleic acids of the viruses on this table are of interest. It is presumed that it is the genetic material—that is, the nucleic acid rather than the protein or the lipid component of the virus particle—which is responsible for inducing the neoplastic transformation in the infected cell.^{17,44} Although there is no direct evidence in support of this for any RNA-containing virus, it has been shown that DNA extracted from rabbit papilloma virus can initi-

*References: 17, 18, 20, 27, 29, 42, 43, 45.

ate tumors³¹ and that the transforming activity of polyoma virus requires DNA-containing particles and not empty protein shells devoid of nucleic acid.¹ The DNAs extracted from adenovirus types 12 and 18, from Shope papilloma and from polyoma have similar densities when centrifuged to equilibrium in cesium chloride.²¹ This finding suggests that the proportion of the four nucleotides forming these DNAs is similar. The DNA of polyoma has the same double-stranded configuration as cellular DNA,¹³ and it recently has been shown that certain regions of polyoma viral DNA and mouse cellular DNA are homologous—that is, the sequence of the nucleotide bases is similar.⁶ Polyoma-induced mouse tumor cells contain DNA with even larger regions of homology—that is, genetic relatedness—for polyoma viral DNA. The DNA-containing tumor viruses (Shope papilloma, polyoma, SV40, adenoviruses) have been termed “hit and run” viruses because following infection and malignant transformation of cells, no infective virus can be detected. However, the presence of noninfectious viral genes in such cells is indicated by the appearance of viral antigen in the transformed cell.^{17,30} Obviously the findings of DNA homology bear directly on the important question of how “hit and run” viruses induce genetically stable malignant change in cells and leave their antigenic “fingerprint” in the cells.

The polyoma virus, SV40 and human adenoviruses are tumor viruses of interest in that their oncogenic potential in the host of origin, namely, the mouse, monkey and man, is unknown. However, they can induce tumors when inoculated into hamsters.* These data suggest that intensive studies should be made of human tumors to seek traces of adenoviral DNA or antigens or both.

In summary, the known tumor viruses fall into three main groups when classified according to physical and chemical properties (Table 1) but, except for their demonstrated oncogenic potential, are not otherwise different from nononcogenic viruses.

*References: 17, 18, 20, 27, 29, 42, 45.

TABLE 1.—Physical and Chemical Properties of Known Tumor Viruses

Type	Symmetry	Nucleic Acid	
		RNA	DNA
Cubic	No viruses		Shope papilloma, polyoma, SV40, adenovirus types 3, 7, 12, 18, human wart
Helical	Avian and murine leukemias, rous sarcoma, murine mammary carcinoma	No viruses	
Complex	No viruses		Shope fibroma, yaba, moluscum contagiosum

What Effects Do Tumor Viruses Produce When Inoculated Into Experimental Animals?

Tumor viruses can induce neoplastic lesions, malignant or benign, in appropriate experimental animals, especially newborn animals. In some instances, the incubation period between inoculation of virus and the appearance of the tumor may be many months. Such a prolonged incubation period, if translated into terms of human life, would be many years.

Figure 4 illustrates tumors induced by avian myeloblastosis virus. In addition to visceral lymphomatosis illustrated here, the chicken leukosis viruses can induce other malignant neoplasms such as leukemia and kidney tumors similar to human Wilms' tumor.²⁵ They also can induce certain benign neoplasms such as hemangiomas and perosteal hyperplasia.⁸

Polyoma virus also can induce a number of neoplasms in the mouse, hamster, rabbit and rat that range from hyperplasia of the renal tubules to malignant metastasizing osteogenic sarcomas.^{42,43} Figure 5 illustrates renal angiosarcoma in the hamster induced by this virus. Figure 6 illustrates the undifferentiated malignant tumors induced at the site of inoculation of human adenovirus type 12.

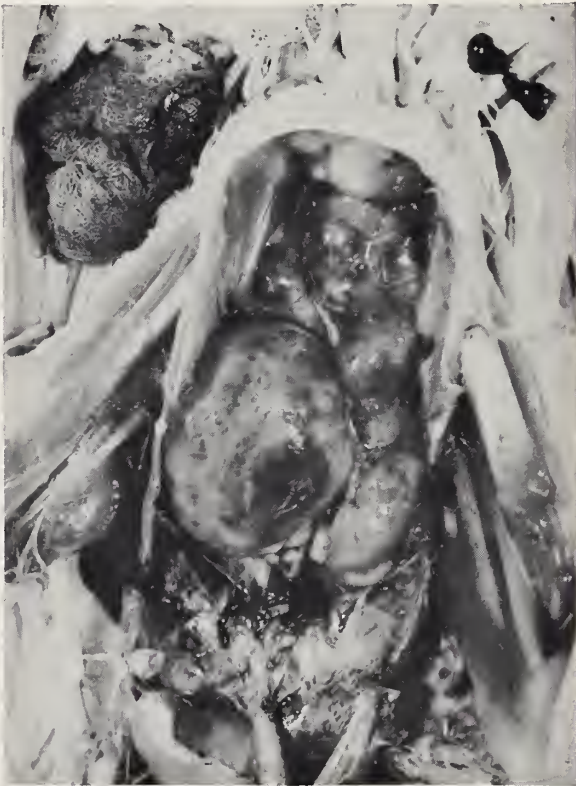


Figure 4.—Photograph of abdominal cavity of adult chicken showing tumors induced by avian myeloblastosis virus. Courtesy of Dr. M. Baluda.

Other human adenoviruses, types 3, 7, and 18, can induce similar tumors in hamsters.^{20,27,29}

In addition to their oncogenic effects, certain tumor viruses can induce non-neoplastic diseases in animals. For instance, Rous sarcoma virus can induce hemorrhagic necrosis of the liver and kidneys of chicken. Polyoma virus can induce pneumonitis in mice and Shope papilloma virus can induce cellulitis in the skin of the rabbit.

In summary, tumor viruses can induce non-neoplastic as well as neoplastic diseases in experimental animals. In some cases, the incubation period between virus infection and tumor can be quite long. Certain tumor viruses (polyoma, SV40, human adenoviruses) are capable of inducing cancer in experimental animals but their role in producing cancer in the host of origin is unknown at present.

What Effects Do Tumor Viruses Have Upon Cells Infected in Vitro?

As has been observed for all known viruses, certain tumor viruses can cause cytotoxic effects, including intranuclear and intracytoplasmic inclusion bodies in cells infected in vitro. Other tumor viruses, such as the avian and murine leukemia viruses, do not cause cytopathic effect in cells in vitro.

Fortunately it was discovered recently that viral-

induced neoplastic changes could be reproduced in isolated cells in tissue culture. This in-vitro carcinogenesis, so-called cell transformation, has been observed with six viruses: Rous sarcoma virus (RSV), polyoma, avian myeloblastosis virus, SV40, bovine papilloma virus and adenovirus type 12.^{34,44} It is of interest that no other carcinogen, x-rays, chemicals or hormones can induce such cell transformation in vitro. Figure 7 illustrates the focus of transformed cells infected with Rous sarcoma virus. The cells on the periphery of the focus are normal chick fibroblasts which grow in a monolayer in the culture vessel and because of a phenomenon called "contact inhibition," do not form piles or foci of multilayered cells.³⁸ Infection of chick cells by Rous sarcoma virus induces a transformation of the cell morphologic structure and physiologic state, and a loss of contact inhibition permitting the cells to pile on top of one another. Recently it has been found that Rous sarcoma virus is a "defective virus."²³ That is, it cannot complete its infective cycle and produce mature infective virus



Figure 5.—Photograph of hamster showing tumors induced by polyoma virus. Courtesy of Dr. B. Eddy.



Figure 6.—Photograph of hamster showing tumors induced by adenovirus type 12. Courtesy of Dr. R. Huebner.



Figure 7.—Photograph of chicken embryo cells showing a focus of cells rendered malignant by Rous sarcoma virus. Courtesy of Dr. H. Rubin.

particles unless a second or "helper" virus has infected the same cell and initiated or induced the production of proteins. The viral-induced proteins of the "helper" virus are used by the Rous virus to form its protein coat.

Cells transformed by Rous sarcoma virus, an RNA virus, continue both to multiply and to release infective RSV (in the presence of the "helper" virus) over long periods.⁴⁴ In contrast, cells transformed by DNA viruses (polyoma, SV40, adenovirus 12) continue to multiply but do not yield infective virus. At present, no reports of "helper" viruses for DNA tumor viruses have appeared, and it has not been possible by any means (x-rays, ultraviolet light, chemical carcinogens, cortisone, starvation) to induce cells transformed by these viruses to produce infective virus.^{6,17,46}

If, however, such transformed cells are inoculated into appropriate host animals (mice or hamsters), they can induce tumors, and in addition, antigenic "fingerprints" of the virus can be detected in the transformed cells.^{17,22,30}

In summary, certain tumor viruses can cause cytopathic effects as well as malignant transformation of cells infected *in vitro*. Intensive studies of cell transformation suggest that in certain systems the ability of a virus to cause malignant transformation is actually linked to its inability to complete its reproductive cycle. Part of the viral genetic material that can be detected as viral antigen remains in the transformed cells and is passed from generation to generation. These findings apparently support Borell's concept of a virus-cell complex that could induce cancer.

How Are Tumor Viruses Spread?

As is true for all known viruses, tumor viruses are spread by three fundamentally different methods.²⁸ One method, horizontal spread, is transmission of virus within a species by postnatal contact. Rous sarcoma virus, polyoma, SV40, adenoviruses and avian leukosis viruses are spread in this manner. The second method, vertical spread, is prenatal or neonatal transmission of virus within a species from mother to young. Ordinary viruses, such as human cytomegalovirus, rubella and the Coxsackie B group are spread in this manner as are the avian and murine leukemia viruses. The third method, exogenous spread, is transmission of viruses from one species to another with or without the aid of insect vectors. In tumor viruses the rabbit fibroma and myxomatosis viruses are spread by arthropod vectors.

In summary, as with other viruses, tumor viruses are spread by means of horizontal, vertical and exogenous transmission.

What Are the New Developments in the Search for Human Tumor Viruses?

First, a number of authors have reported isolation of viral agents from human cancer tissues.

Dalldorf and Bergamini¹⁴ and Bell and coworkers⁹ have reported the isolation of viral agents from Burkitt's tumors; Negroni³⁵ has recovered agents from leukemic tissues, and Sohler and coworkers⁴⁰ and McAllister and his associates³³ have recovered adenoviruses from solid tumors. All of these agents were detected because of their ability to cause cytopathic effects in tissue cultures. The isolation of these viruses from human tissue raises the important question of their significance—whether they played an etiologic role in the cancer, whether they were "passenger" viruses latent in the tumor tissue or whether they were laboratory contaminants. McAllister and coworkers³³ applied certain criteria for determining the significance of their isolates, and the results of these experiments did not indicate with certainty whether or not the viruses had etiologic significance. The problem of establishing etiologic significance of viruses isolated from cancer tissues will be discussed below.

Second, Epstein and coworkers¹⁹ reported the possible induction of bony changes suggestive of Burkitt's tumor in monkeys following injection with extracts of Burkitt's tumor tissue. This exciting observation would suggest that Burkitt's tumor is induced by a virus and that it is the first known human cancer virus that will cause tumors in laboratory animals. Recently, however, the diagnosis of the bony changes induced in the monkeys has been challenged. The bony dysplasia observed may simply be due to a nutritional deficiency of captive monkeys and not due to neoplasia. At present, therefore, the reported transmission of Burkitt's tumor to monkeys is not an established fact.

Finally, as mentioned above, intense interest surrounds the reports of virus-like particles observed by electron microscopy in the serum of leukemic patients.^{2,11,15,16,39} These particles resemble the myxovirus-like particles of avian and murine leukemia and therefore could represent their human leukemia counterpart.

However, in order to put the human particles in perspective with the known leukemia viruses, the methods of detection of the latter are summarized in Table 2.

All avian and murine leukemia viruses can induce leukemia *in vivo* and can be observed by electron

TABLE 2.—*Detection of Known Leukemia Viruses*

1. Induction of leukemia *in vivo*
2. Tissue culture effects
 - a. Malignant transformation of infected cells
 - b. Viral interference
 - c. Helper virus effect
 - d. Viral antigen in infected cells
3. Electron microscopic observation of virus particles in tissues and in serum

microscopy. Also the presence of viral antigen in cells infected by Rous sarcoma virus or by Friend murine leukemia virus has been demonstrated by fluorescent antibody.⁴⁷ In addition, viral antigen has been detected by complement fixation reaction in cells infected with Rous sarcoma virus or avian leukemia viruses.⁵ On the other hand, only avian leukemia viruses have demonstrated the "helper" virus²³ and interference effects³⁷ (for Rous sarcoma virus) and only one of the avian leukemia viruses, avian myeloblastosis virus, can induce malignant transformation of infected cells.⁷

In contrast to these data, to date the human particles have not been adequately tested for their capacity to induce leukemia in any experimental animal or to induce tissue culture changes of any type. Accordingly, the significance of these particles must be viewed skeptically until more is known about them. This position is perhaps fortified by the fact that it has not been clearly established that the particles do not represent cellular debris or pleuropneumonia-like organisms (PPLO) both of which may be present in the serum of leukemic patients and could resemble myxovirus-like particles when observed in the electron microscope.

In summary, although viruses have been isolated from human cancer material and virus-like particles have been observed in the serum of leukemic patients, the significance of these observations is at present unknown.

What Evidence Is Required to Establish an Etiologic Relationship Between a Virus and a Neoplasm?

This problem has been discussed by a number of authors^{3,32} and it is perhaps the most difficult problem in cancer biology. It is known that tumor tissue may harbor not only the specific etiologic agent but also passenger viruses which can include tumor-producing and non-tumor producing viruses. For instance, certain leukemic tissues of mice contain the Gross virus (specific etiologic agent) as well as the polyoma virus (passenger tumor virus). Thus rigid criteria must be satisfied before a causal relationship between an isolated virus and a neoplasm can be accepted. A summary of the suggested criteria is as follows:

1. Isolation from tumor tissue of a virus that can induce tumors in vivo or cell transformation in vitro.

2. Repeated isolation of the virus from individuals with the same tumor type.

3. Demonstration of neutralizing antibody to the virus in the serum of the patient, and also determination of the distribution of neutralizing antibody in the human population and its quantitative relation to the distribution of the specific neoplastic disease. Failure to detect neutralizing antibody

would not exclude the virus as a causative agent because in experimental animals some known tumor viruses have failed to form antibodies in their natural hosts³⁸; however, such an unknown virus might produce antibodies in another species, and repeated isolation of a virus with the same serotype from patients with the same tumor type would suggest an etiologic relationship.

4. Demonstration of viral antigen ("fingerprint") in tumor cells. In view of the studies of Huebner and coworkers,³⁰ the antigen of certain DNA-containing tumor viruses may be detected in tumor cells even though infective virus is not present. This observation may provide a new tool in the search for tumor viruses.

5. Suppression of incidence of a tumor by vaccination with the viral antigen.

6. Finally, the induction of cancer in inoculated human volunteers would prove the etiologic role of a viral agent beyond doubt. It is possible that such an experiment could be avoided if the other criteria were fulfilled.

It is obvious that in order to establish a firm etiologic relationship between a virus and a tumor, more evidence is required than mere isolation of an infective virus from tumor tissue or detection by electron microscopy, of virus-like particles in human serum (whose infectivity is unknown).

How Would the Discovery of Human Cancer Viruses Be Helpful in the Treatment and Prevention of Human Cancer?

If human cancer viruses are eventually discovered and if they are typical viruses and the cancers they induce are typical cancers, one might ask how can these data be put to use?

First, can virus vaccines be used to control human cancer as they have certain virus diseases? Even if viruses are isolated and accepted as human cancer viruses according to the criteria discussed above, this question may require many years to answer. Ecologic information about them must be gathered, such as prevalence, age distribution, modes of spread, infectious cycle and possible reservoirs. In the meantime a vaccine prepared from the virus and administered to human beings may require decades to evaluate. For instance, if adenoviruses (in the presence of certain cocarcinogenic factors, such as chemicals, hormones or x-rays) induced certain solid tumors and if the latent period between virus infection and tumor were 50 or more years, it is obvious that the results of a vaccine trial might require five decades or more. On the other hand, if viruses induce childhood leukemia (and are not transmitted congenitally), the protective effects of a hypothetical vaccine might be evaluated in a few years.

Finally, one might ask: Will viral inhibitory substances effective in the prevention and treatment of virus diseases be effective in the prevention and treatment of virus-induced cancer? At present only three substances have proven antiviral activity—adamantanamine hydrochloride (used in prevention of influenza A virus infections), thiosemicarbazones (used in prevention of smallpox) and 5-iodo-deoxyuridine (used in treatment of herpes keratitis).³⁶ If more antiviral substances are developed, it is possible that some of them might be effective in virus-induced cancer. In addition, careful studies of the effects of antiviral substances in cells infected by tumor viruses might yield information that will aid in developing a rational cancer chemotherapy.

Other Dividends Obtained from Studies of Tumor Viruses

The 1964 Lasker Awards for basic medical research were made to Dr. Renato Dulbecco of the Salk Institute for Biological Studies at San Diego and to Dr. Harry Rubin of the University of California, Berkeley, for studies of tumor viruses.^{17,38} The research of these two distinguished California scientists on polyoma virus (Dulbecco) and avian leukemia and Rous sarcoma viruses (Rubin) clearly demonstrated the far-reaching biological significance of the studies of tumor viruses. Dulbecco recognized that viral-induced transformation of cells not only is a form of experimental carcinogenesis but also can be a form of cellular differentiation, the "understanding of which is one of the major objectives of biological research." Rubin's studies of vertical and horizontal transmission of avian leukemia viruses provide an important model for use in studying the epidemiology of leukemia in man as well as the epidemiology of other viral diseases such as serum hepatitis. In addition, his discovery of a "defective" animal virus (Rous sarcoma virus) opens an entire new dimension in animal virology.

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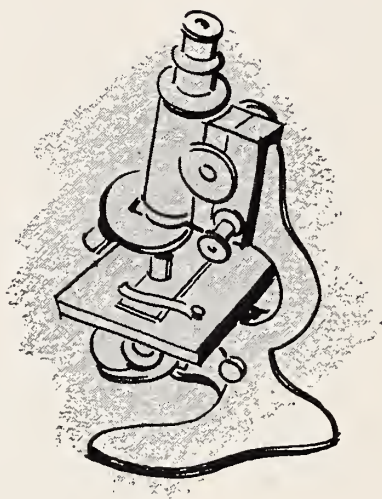
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DIABETES INSIPIDUS

Difficulties in Diagnosis and Treatment; Use of Synthetic Lysine-8 Vasopressin in Patients Intolerant of Other Therapy

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■ *Frequent errors in the diagnosis of diabetes insipidus arise from (1) failure to produce an adequate stimulus for release of antidiuretic hormone, and (2) failure to appreciate acute or chronic changes in renal function that may obscure test results. Properly timed determination of body weight, urine volume and serum and urine osmolarity during the course of water deprivation, and comparison of these values with those obtained after administration of exogenous vasopressin, eliminates most diagnostic errors. In four patients who had experienced local and systemic reactions to other exogenous forms of vasopressin, diabetes insipidus was satisfactorily controlled by administration of synthetic lysine-8 vasopressin in nasal spray. A fifth patient was also treated satisfactorily with this preparation.*

THE DIFFERENTIAL diagnostic list of polyuric states is short but the true diagnosis in some patients is missed because of failure to consider the entire list or because of improperly performed diagnostic tests. When most of the conditions listed in Table 1 have been ruled out by appropriate history, physical examination and laboratory tests, one is often left with the problem of differentiating true diabetes insipidus, psychogenic water drinking and nephrogenic diabetes insipidus. Carter and Robbins³ pro-

posed the intravenous administration of hypertonic saline solution as a diagnostic aid. This test was based on the observations of Hickey and Hare⁴ that artificially increasing the serum sodium level normally results in antidiuresis and that patients with diabetes insipidus do not show such a response. The physiological stimulus for release of antidiuretic hormone (ADH), namely, water deprivation, has also been suggested as a suitable test.^{2,5} In normal subjects the response is production of urine that is hypertonic to serum, little loss of weight and very little increase in serum osmolarity. However, the results of both tests may be misleading unless precautions are taken.

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TABLE 1.—*Causes of Polyuria*

Chronic renal insufficiency
Hypercalcemia
Hypokalemia
Diabetes mellitus, uncontrolled
Psychogenic polydipsia
Abnormal thirst center
Absence of action of antidiuretic hormone due to:
(a) tumor, infection, or trauma affecting hypothalamic-hypophyseal system or due to unknown causes
(b) familial absence of ADH
(c) renal refractoriness to ADH

When the diagnosis of true diabetes insipidus has been made, adequate therapy is usually accomplished by administration of (1) pitressin tannate in oil injected every second and third day, (2) powdered pituitary snuff by nasal insufflation two to six times daily, or (3) aqueous pitressin injections two to eight times daily. The last form of therapy is usually quite inconvenient. Occasionally the other two treatments give rise to serious reactions.

Histories of patients with some of these diagnostic and therapeutic problems are given below. A protocol for a water deprivation test that has been found convenient to elicit the data necessary to distinguish between normal and abnormal responses is described. The use of a new agent, synthetic lysine-8 vasopressin, in patients allergic to usual forms of therapy is also described.

Method:

1. Permit patient to drink water through the night if he desires.

2. Starting at 7 a.m., weigh the patient completely naked at hourly intervals to end of test. Collect hourly urine specimens for volume, specific gravity and, when indicated, osmolarity and creatinine. Draw blood at 7 a.m. for serum osmolarity and creatinine. Do not allow patient access to food or fluids; he should be kept under unobtrusive but constant surveillance by physicians or nurses. Other patients should not be asked to perform such surveillance.

3. (a) If within six hours urine flow begins to fall to less than 50 per cent of initial value, obtain blood specimens at the mid-point in two consecutive urine collection periods. Determine osmolarity and creatinine on both blood and urine specimens for these two periods and compare with baseline values obtained at 7 to 8 a.m. If the decrease in urine flow is associated with weight loss (more than 3 per cent), give the patient an amount of water equal to that lost from the start of water deprivation. When urine flow has again increased, administer vasopressin 0.5 unit in 5 per cent aqueous solution of dextrose intravenously over one hour. Collect urine hourly and weigh the patient hourly for four more hours.

(b) If the patient does not have a significant decrease in urine flow within six to eight hours, obtain one blood specimen mid-way in an hourly urine collection and measure serum and urine osmolarity. Administer vasopressin and obtain urine hourly and weigh the patient hourly for four more hours. Determine urine and serum osmolarity on the last one or two specimens. The freezing-point osmometer* is used to determine both serum and urine osmolarities.

Reports of Cases

CASE 1. A 43-year-old man had a febrile, influenza-like illness which was followed by constant headache, lethargy, polyuria and polydipsia. One month later bi-temporal hemianopsia rapidly developed. Serum calcium, phosphorus, potassium, sodium, chloride and carbon dioxide concentrations were within normal limits, as were glomerular filtration rates and tests for liver function. The patient was shown to have panhypopituitarism. Results of a Carter-Robbins test are shown in Table 2. There was no increase in urine osmolarity after hypertonic saline solution was administered but there was an increase after administration of vasopressin. Ordinarily this would be considered characteristic of diabetes insipidus but it should be noted that the hypertonic saline solution did not elevate serum osmolarity sufficiently to stimulate ADH release. This test could not be considered diagnostic.

A water deprivation test was carried out with the results as shown in Table 3.

The fall in urine volume and rise in urine osmolarity might be considered a normal response. How-

* Manufactured by Advanced Instruments, Model 631-31.

TABLE 2.—*Carter-Robbins Test in Case 1*

<i>Time (Min- utes)</i>	<i>Urine Volumes (ml)</i>	<i>Urine Osmo- larity (mOsm/L)</i>	<i>*Plasma Osmo- larity (mOsm/L)</i>
0	-----	-----	-----
15	130	-----	-----
30	125	90	280
3 per cent saline solution started intravenously			
45	175	83	285
60	140	84	285
75	125	98	287
700 ml saline solution infusion completed			
90	125	111	-----
105	115	109	285
Lysine-8 vasopressin 100 milliunits per hour started intravenously			
115	90	125	290
130	35	404	-----
145	20	500	-----
160	25	740	290

* Normal range=285 to 295 mOsm/L.

ever, these changes were probably secondary to the 41 per cent fall in creatinine clearance. The urine osmolarity did not rise above serum osmolarity, which increased sufficiently to cause ADH release in a normal subject. A diagnosis of true diabetes insipidus was made.

Pneumoencephalogram and cerebral angiograms were normal. The patient was treated with L-thyroxine, hydrocortisone and testosterone enanthate in physiologic replacement doses. Lysine-8 vasopressin was administered by nasal spray three to five times each 24 hours and urine volume then decreased to 2.5 to 3.0 liters daily from 10 to 20 liters daily. Neurologic symptoms gradually progressed, and ten months later the patient lapsed into a coma and died. Postmortem examination revealed diffuse cerebral reticulum cell sarcoma.

CASE 2. The patient, a 36-year-old married woman, was first seen in the general medical clinic at U.C. Medical Center in 1956 at the age of 28. Pronounced polyuria and polydipsia had developed at the age of 20, a few months after a fiance died of leukemia and a diagnosis of psychogenic polydipsia was made at that time.

Physical examination was normal except for several areas of neurodermatitis and a slightly blurred and pale left optic disc and constriction of the left visual field. Serum calcium and potassium levels were within normal limits. Anterior pituitary function was normal and pneumoencephalogram revealed no abnormalities.

A Carter-Robbins test was performed, without measurement of serum or urine osmolarities, and the results were as shown in Table 4. These results would be diagnostic of true diabetes insipidus provided one could be certain that the serum osmolarity had been significantly elevated by the hypertonic saline solution.

The patient was treated with pituitary snuff but this rapidly produced hypertrophic rhinitis and did not control the polyuria. She was then treated with pitressin tannate in oil. This gave adequate control of polyuria but resulted in exacerbation of the atopic

TABLE 4.—Carter-Robbins Test in Case 2

Time (min.)	Urine Volume (ml)	Urine Specific Gravity
1,000 ml tap water orally		
30	330	1.003
15	150	1.002
15	140	1.001
360 ml 3 per cent saline; 8 ml per min— intravenously		
15	140	1.002
15	165	1.001
15	125	1.003
End of hypertonic saline infusion		
15	110	1.001
15	115	1.001
Aqueous pitressin—5 units		
15	90	1.006
15	20	1.010
15	25	1.012
15	60	1.014

dermatitis. Treatment with these two agents was alternated, with varying degrees of success and complications. Later, methyl prednisolone was given in dose of 4 mg daily for control of dermatitis and rhinitis. In 1963, the patient began having attacks of wheezing, dyspnea, sweating, flushing and anxiety after injections of pitressin tannate in oil.

In 1964 she was referred to the Endocrine Clinic. Physical examination was normal except for extensive areas of thickened skin, atrophy of nasal mucous membranes and signs of hypercorticism. The left optic disc and visual fields were unchanged from the previous examination. An electroencephalogram revealed mild diffuse cortical disturbances of a nonspecific type. X-ray films of the skull revealed no abnormalities.

A water deprivation test gave the results shown in Table 5.

There was a fall in urine volumes and rise in specific gravity and osmolarity, but the patient did not produce urine hypertonic to serum. The serum osmolarity did not rise much during the test but was high at the beginning of water deprivation. A diagnosis of true diabetes insipidus was made.

She was treated with lysine-8 vasopressin by nasal spray. By use of the spray every four or five hours in large amounts (5 ml every two days) the urinary volume was decreased from 9 liters to 2.5 liters per day. Voiding frequency decreased from every 60 to 90 minutes every day and night to every three hours during the day and the patient was able to sleep uninterrupted hours at night. There were no allergic symptoms, the nasal membranes were unchanged and there was no change in pulse or blood pressure following each dose. She noted increased dosage requirements associated with physical exercise, cold weather and the premenstrual period.

TABLE 3.—Water Deprivation Test in Case 1

Time (Hours)	Body Weight (kg)	Urine Volume (ml)	Urine Osmolarity (mOsm/L)	Serum Osmolarity (mOsm/L)	Creatinine Clearance (ml per min.)
0	82.3	.....	.....	.....	94
1	82.0	375	88	280	
2	81.7	335	90		
3	81.4	380			
4	81.1	315			
5	80.5	210	120	290	63
6	80.3	140	148	294	56

TABLE 5.—*Water Deprivation Test in Case 2*

<i>Time</i>	<i>Body Weight (kg)</i>	<i>Urine Volume (ml)</i>	<i>Specific Gravity of Urine</i>	<i>Urine Osmolarity (mOsm/L)</i>	<i>Serum Osmolarity (mOsm/L)</i>	<i>Creatinine Clearance (Uncorrected) (ml per min.)</i>
8 a.m.	56.4	(12-hr.—night coll.)	1.003	81	300	116
9 a.m.	56.1	400	1.002			
10 a.m.	55.6	450	1.001			
11 a.m.	55.5					
12 a.m.	55.2	250	1.001			
1 p.m.	55.3					
2 p.m.	54.8	250	1.005	160	305	79
3 p.m.	54.7	200	1.004			
4 p.m.	54.5	165	1.006	154	308	69

CASE 3. The patient, a 19-year-old housewife, had had polyuria and polydipsia from birth. Her father also had polyuria and polydipsia but refused to be studied. There were no siblings. At age 4 the patient drank 3 to 4 liters of water daily and had a large urinary output. At that time a diagnosis of diabetes insipidus was made and she was treated with pituitary snuff, aqueous pitressin and finally pitressin tannate in oil. At age 7 she was noted to be refractory to pitressin tannate in oil and fibrosis developed at the sites of injection. Several Carter-Robbins tests were variously interpreted as compatible with psychogenic polydipsia and true diabetes insipidus. Anterior pituitary function, visual fields and x-ray films of the skull were within normal limits. When first seen at the University of California Medical Center on the Pediatrics Service at age 14, the patient was drinking about 14 liters of water a day. Water deprivation for 12 hours brought about a 4.5 kg loss in weight with a total urine volume of 4 liters. The specific gravity of the urine was 1.002 at the start and the finish of the test. Treatment with pitressin tannate in oil was resumed, with only partial control. In 1960 and 1961 treatment with chlorothiazide, 0.5 gm three times a day, had little effect on water intake or output.

In January, 1962, a Carter-Robbins test gave the results shown in Table 6.

The elevation of the specific gravity of the urine

TABLE 6.—*Carter-Robbins Test in Case 3*

<i>Time (min.)</i>	<i>Urine Volume (ml)</i>	<i>Specific Gravity</i>
30	280	1.002
60	225	1.001
300 ml 3 per cent saline given intravenously		
90	240	1.002
120	285	1.006
150	175	1.008
20 units aqueous pitressin intramuscularly		
180	50	1.010
210	25	1.013

from 1.002 to 1.008 after infusion of hypertonic saline solution was interpreted as a partial response but was probably due to increased solute excretion. There was subsequently a more pronounced response to pitressin.

A 6-hour water deprivation test caused a rise in serum osmolarity from 285 to 300 and in urine osmolarity from 81 to 257. Body weight, urine volume and creatinine clearance were not recorded. In an attempt to clarify the diagnosis the water deprivation test was repeated and gave results characteristic of diabetes insipidus, as shown in Table 7.

Administration of 3 units of lysine-8 vasopressin intravenously caused elevation of blood pressure from 130/80 to 156/100 mm of mercury and the test was discontinued because of associated headache, nausea and emesis.

The patient was then treated with lysine-8 vasopressin by nasal spray without nasal irritation or side effects. Blood pressure was unaffected. Urine volume fell to 1.5 to 3 liters a day from 12 to 15 liters a day.

CASE 4. The patient, a 28-year-old mechanic, received a severe head injury when an automobile fell on him. He was unconscious for one month and it was found that his skull fractures had resulted in (1) right subdural hematoma; (2) left subdural hygroma; (3) defects in cranial nerves 3 through 12 on the right; (4) carotid-cavernous fistula on the right; (5) left internal carotid stenosis. After several neurosurgical procedures he regained consciousness. The clinical diagnosis of diabetes insipidus was confirmed by persistent excretion of dilute urine despite serum osmolarities of 308 mOsm per liter. He was treated with pitressin tannate in oil, but quantities sufficient to produce antidiuresis also caused cramps and diarrhea. Pituitary snuff was used satisfactorily for two weeks but the patient then began to have severe wheezing and palpitations for one hour after each insufflation. After discontinuance of this treatment, the urine output increased to

TABLE 7.—*Water Deprivation Test in Case 3*

<i>Time</i>	<i>Body Weight (kg)</i>	<i>Urine Volume (ml)</i>	<i>Urine Osmolarity (mOsm/L)</i>	<i>Serum Osmolarity (mOsm/L)</i>	<i>Creatinine Clearance (ml per min.)</i>
7 a.m.	78.4	.....	100	297	81
8 a.m.	77.9	560			
9 a.m.	77.2	620			
10 a.m.	76.8	375			
11 a.m.	76.4	380			
12 a.m.	76.0	425			
1 p.m.	75.4	580	184	303	87
2 p.m.	75.1	225	200	307	68

10 liters per 24 hours and the patient had nocturia every one to two hours. At last report he had used synthetic lysine-8 vasopressin nasal spray every six to eight hours for four months, had had no reactions and the 24-hour urine volume had been 2,500 to 3,500 ml.

CASE 5. The patient, a 49-year-old married man, had polyuria and polydipsia of about five years' duration. He was found to have pronounced enlargement of the sella turcica but his visual fields and anterior pituitary function were normal. Urine volume varied from 10 to 12 liters per 24 hours. The result of a Carter-Robbins test was typical for diabetes insipidus. The patient was known to be allergic to penicillin. He had been successfully treated with injections of pitressin in oil for two years but then giant urticaria developed after each injection. After eight days of therapy with pituitary snuff, he began to have sneezing, wheezing, rhinorrhea, conjunctivitis and malaise with each insufflation. He then treated himself with aqueous pitressin injections twice daily with only partial control. Lysine-8 vasopressin nasal spray was prescribed, to be taken at 7 a.m., 12 noon and at bedtime with occasional 6 p.m. dose. When last observed, after 15 months of this therapy his 24-hour urine volume was averaging 1,500 ml. he was sleeping through the night for the first time in four years and he had had no side effects. He was using 5 ml of the spray solution, containing 50 units per ml, every five or six days.

Discussion

The error arising in tests designed to differentiate various polyuric states usually fall into two categories: (1) failure to provide an adequate stimulus for ADH release and (2) changes in renal hemodynamics that may obscure the results.

In the Carter-Robbins test, false positive and false negative results may stem from: (1) inadequate urine flow before infusion of the hypertonic saline solution; (2) inadequate elevation of serum osmolarity by the hypertonic infusion; (3) radical changes in the solute load presented to the kidney; (4) pronounced fluctuations in the glomerular filtration rate during the test; (5) decreased urine

flow late in the test due to loss of the water load administered early in the test.

In the water deprivation test, patients with true diabetes insipidus or nephrogenic diabetes insipidus will continue to excrete large volumes of dilute urine until body weight has decreased by 3 to 5 per cent. With this degree of fluid loss, the serum will become hypertonic and glomerular filtration rates will decrease 50 per cent or more. So great a decrease in glomerular filtration rate may cause urine volume to decrease and urine osmolarity to increase. Unless the changes in body weight and glomerular filtration rates are detected, the urine changes may be interpreted as a normal response to dehydration. Patients with renal impairment may not respond normally to endogenous ADH and may appear to have nephrogenic diabetes insipidus unless their response to dehydration is compared with their response to exogenous vasopressin. Patients with psychogenic polydipsia may have low serum osmolarity at the beginning of the test: in such cases water deprivation may not raise serum osmolarity sufficiently to stimulate release of ADH.

By correlating changes in body weight with urine volume, by having creatinine clearance and osmolarity determined on a few key specimens of urine and serum and by comparing responses to dehydration with those following exogenous vasopressin, most of these errors may be detected. The test results in the cases reported herein are typical examples. One additional problem is the abnormal response of the hypothalamus to changes in serum osmolarity and of the kidney to ADH that may be induced by compulsive water drinking of long standing. These abnormal responses can usually be abolished by restricting water intake for two or more weeks.¹

The use of pituitary snuff and of pitressin tannate in oil to control symptoms of diabetes insipidus may be impossible in some patients because of local irritation or systemic allergic reactions. The successful use of synthetic lysine-8 vasopressin has been previously reported in three patients who had hypersensitivity reactions to other preparations, but the nature of these reactions was not described. In none of the five patients reported upon herein did

nasal irritation, ulceration or systemic reactions occur even though four of them had had local or systemic reactions to other products. It is likely that the local irritation and systemic reactions produced by pitressin pituitary powder and pitressin tannate in oil are due to constituents other than the antidiuretic hormone. Most reports on the use of synthetic lysine-8 vasopressin do not mention undesirable effects and refractoriness.^{7,8,10,12} This would be expected with a synthetic substance free of animal protein and dissolved in a simple solvent. One patient of Sjöberg and Luft¹¹ had to discontinue therapy because of ulceration of the nasal mucosa. One patient of Chirman and Kinsell⁴ had idiopathic diabetes insipidus and was refractory to nasal spray therapy. She had many emotional problems and was subsequently refractory for a time to pitressin tannate in oil. The details of the diagnostic tests were not given. Another of their patients, a 15-year-old girl, had wide variability in requirements for both pitressin tannate in oil (from daily to once a week) and also in requirements for lysine-8 vasopressin nasal spray (from every three hours to every twelve hours). She eventually discontinued the spray for social reasons. In the five patients herein reported upon, neither refractoriness nor variability in dose requirements was encountered.

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Sigmoidoscopic Examination

Routine Use for Patients in Hospital

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■ *Routine sigmoidoscopic examination as a screening method for detecting cancer of the colon was evaluated during a recent four-year period. In 18,120 patients, this examination discovered 1,087 with unsuspected benign polyps (6.0 per cent), 51 patients with unsuspected malignant polyps (0.28 per cent), and 36 patients with unsuspected cancer (0.2 per cent). These 36 cases of cancer of the colon made up 24.8 per cent of all the cancers that occurred in the lower sigmoid and rectum (within 25 cm of the anorectal junction) in the series.*

SIGMOIDOSCOPIC EXAMINATION should be the most effective method of detecting cancer of the colon, for 70 to 80 per cent of these tumors occur within 25 cm of the anorectal junction.^{1,9,11} The value of routine sigmoidoscopic examination for outpatients has been pointed out^{3,8,12} and the present report is on a study which indicated that routine use of this procedure for inpatients also is warranted.

All persons over 21 years of age admitted to the Ohio State University Hospital or to the outpatient clinics were scheduled for routine sigmoidoscopic examination. Exclusion from this examination was allowed if the patient refused, had a medical contraindication, terminal disease, previous colostomy or recent sigmoidoscopy. To facilitate the examinations, special sigmoidoscopy rooms (which could be used for other procedures) were established in the hospital and clinic. Nursing aides prepared patients for examination, assisted the examiner and maintained the equipment. Examinations were performed by staff physicians, house staff, residents and supervised medical students.

Patients were scheduled for examination at 45-minute intervals to allow the aide sufficient time for cleansing the room and preparing the next patient. Unless contraindicated, all patients were given enemas with disposable equipment.² Angulated, box-type forceps were available for obtaining biopsy specimens. Only small polyps were removed with the cold-punch, the larger ones being extirpated in the operating room under ideal hemostatic conditions.

In four years, sigmoidoscopic examination of 18,120 patients was carried out, 3,444 of whom had repeat examinations, bringing the total number of examinations to 21,564.

Table 1 presents the incidence of unsuspected colonic neoplasms detected by routine sigmoidoscopic examination. In 1,087 (97.5 per cent) of 1,114 cases in which benign polyps were visualized, the presence of the lesions had not been previously suspected. Since 86 per cent of these lesions were less than 1.0 cm in diameter, it was not surprising that there would be so low an index of suspicion by the examiner. In 51 of the 59 patients with malignant polyps within 25 cm of the anorectal junction, the lesions were unsuspected before sig-

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TABLE 1.—*Neoplasms Detected by Routine Sigmoidoscopic Examination of 18,120 Patients*

	<i>Suspected</i>		<i>Unsuspected</i>		<i>Total</i>	
	<i>No. of Patients</i>	<i>Per Cent of Total</i>	<i>No. of Patients</i>	<i>Per Cent of Total</i>	<i>No. of Patients</i>	<i>Per Cent of Total</i>
Benign polyp	27	0.15	1,087	6.0	1,114	6.15
Malignant polyp	8	0.04	51	0.28	59	0.32
Carcinoma	109	0.6	36	0.2	145	0.8
Total	144	0.79	1,174	6.48	1,318	7.27

moidoscopic examination (86 per cent). The average size of these lesions was greater than that of benign polyps: 64 per cent of them were greater than 1.0 cm in diameter.

It is of utmost significance that 36 cases of unsuspected carcinoma were detected by routine sigmoidoscopic examination. This number made up 24.8 per cent of those carcinomas which occurred within sigmoidoscopic range. A review of these cases elicited that the patients did not have outstanding symptoms.

Four serious complications occurred in 21,564 sigmoidoscopic examinations. Two patients with pronounced bleeding after polyp biopsy were admitted to the hospital for transfusions and repeat fulguration. Bowel perforation occurred in two patients with pre-existing pelvic abscesses and visible colonic mucosal changes. The patients were managed nonsurgically. One survived and the other died 26 days later. None of the examinations resulting in complications was performed by a medical student.

Discussion

The development and widespread use of an effective method of screening patients for colonic carcinoma would be a major step in lessening the appalling mortality of this disease. The ideal screening method must meet certain criteria. It must be simple enough so that it can be used by all physicians, whether in office or hospital practice. It must be economical and safe for the patient. It must use professional time sparingly. It must be 90 per cent or more truly positive and less than 5 per cent falsely positive. As yet, no screening test for colon cancer meets all of these requirements.

The value of routine sigmoidoscopic examination is demonstrated in this study by the overall incidence of 6.55 per cent detection rate of unsuspected colonic neoplasms, divided as follows: 6 per

cent benign polyps. 0.35 per cent malignant polyps and 0.2 per cent carcinomas. While the amount of professional time spent in detecting one malignant lesion makes routine sigmoidoscopic examination less than ideal, certainly it is the best existing screening test.

Since relatively few unsuspected neoplasms were found in the age group below 30 years, our working policy is to recommend routine sigmoidoscopic examination at two year intervals for asymptomatic persons 30 years of age and older.

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Skin Cancer as a Cause of Death

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■ *An estimated 6,000 new cases of skin cancer (excluding melanoma) occur each year in California, and vital statistics data show about 125 deaths attributed annually to this cause. A study of deaths attributed to skin cancer indicates that the true number was probably between 40 and 50. More than half of those who died were 75 years of age or over. Delay by the patient was the factor occurring most often in the deaths which could have been avoided.*

CANCER of the skin, excluding melanoma, is generally considered a mild, nonfatal form of cancer. Existing data show this to be true; California, with a population of about 15,000,000 in 1959 and an estimated 6,000 new skin cancer cases per year,² recorded a total of 130 deaths with skin cancer designated as the underlying cause. (As will be shown later, the actual number of skin cancer deaths was considerably less than the total of 130 that had been recorded. An exploration of reasons for this discrepancy constitutes one of the objectives of this paper.)

Several questions arise from these facts: Is the number of deaths coded to skin cancer valid? If not, how many deaths should be attributed to this cause? What factors are associated with these deaths? Should there be *any* deaths caused by skin cancer?

The above questions were raised by Dr. John W. Cline, a member of the Advisory Committee for the California Tumor Registry, California State Department of Public Health. Similar questions had been previously raised by one of the authors (Levin) in an analysis of deaths from skin cancer in California.⁴ A study designed to provide the answers was undertaken jointly by the California Tumor Registry and the Cancer Commission of the California Medical Association.

From the Bureau of Chronic Diseases, California State Department of Public Health (Dr. Dunn and Mr. Linden). Dr. Levin is Chief of Department of Dermatology, Mount Zion Hospital and Medical Center, San Francisco.

Coding of the underlying cause of death on death certificates is dependent on the information supplied by the certifying physician. Specific coding rules must be applied when information on the death certificate is vague and does not clearly state the underlying cause of death. As a result, vital statistics regarding cause of death on death certificates have commonly been regarded with some suspicion because of the questionable validity of the data. Moriyama and coworkers⁵ and James and coworkers³ found a fairly high degree of validation for cancer. Moriyama's study disclosed 86 per cent agreement for all sites of cancer combined when the coded cause of death on the death certificate was checked through inquiry with the certifying physician, and James found 92 per cent agreement. Data on validation for skin cancer deaths were not published, however, because of the small numbers of skin cancer deaths in the two studies.

Review of a sample of California death certificates coded to skin cancer as the underlying cause indicated that the validity of deaths coded to this cause might be considerably lower than for total cancer.

Method of Study

The present study is based on the 130 California deaths in 1959 that were coded to skin cancer as the underlying cause. (Death certificates are coded according to the World Health Organization's In-

ternational Statistical Classification by the Bureau of Vital Statistics of the California State Department of Public Health, using rules formulated by the National Vital Statistics Division, National Center for Health Statistics.)

The death certificates were first reviewed by one of the authors of this study (Dunn); he eliminated 41 cases, mainly deaths which on review of the certificates were attributable to squamous cell carcinomas of the lip, carcinomas of the anus, epidermoid carcinomas with primary site unknown, and histologic types of cancer not arising in skin tissue. (National Vital Statistics Division rules have the effect of overcoding to skin cancer.)

The decision to eliminate carcinoma of the lip (but not skin of the lip) is in conformity with usual practice, the former site being considered more closely related to cancer of the oral cavity than of the skin. Similarly cancer of the anus is usually considered in relation to cancer of the rectum. Death certificate information is inadequate to distinguish cancers of the visible perianal skin from those of the canal. Cancers of the anus were therefore excluded as well.

Additional information on the remaining 89 deaths was then secured from the physicians who had certified the deaths. Physicians residing outside the San Francisco and Los Angeles metropolitan areas received a questionnaire requesting information on diagnosis, treatment, microscopic confirmation and cause of death. Fifty-one questionnaires were mailed; all but two were returned.

Deaths certified by physicians residing in the San Francisco and Los Angeles areas were randomly assigned: half of the physicians received mailed questionnaires and half were interviewed by two dermatologists, Dr. J. W. Wilson and Dr. E. A. Levin, using the same questionnaire. Nineteen interviews were conducted, 13 in Los Angeles, 6 in San Francisco. The same number of mailed questionnaires were sent to physicians in metropolitan areas, and all were returned.

The response rate for the entire series of 89 deaths was 98 per cent; for the 70 mailed questionnaires, 97 per cent. Physicians who did not respond to the original correspondence received follow-up letters, and in some cases were contacted by telephone. In several instances the physician who had certified the death provided a reference to another physician who was able to provide additional data.

Information obtained through interview was generally more complete than that obtained through mailed questionnaire. Most of the mailed questionnaires were adequately filled out for the study; some, however, lacked information because the certifying physician had had little contact with the pa-

tient or because his information on the history of the case was incomplete.

Each of the questionnaires was evaluated independently by Dr. Dunn and by Dr. Kenneth Ernst, pathologist, Chief of the Cancer Diagnosis and Therapy Evaluation Unit of the Department. Differences were reviewed jointly. An independent appraisal was made by Dr. Lewis W. Guiss. While it was not feasible to set up rigid rules for classifying all deaths because of the paucity of information received on some of the questionnaires, it was possible to place the deaths in fairly discrete categories.

Results

Analysis was directed to four major questions:

1. Did the patient have skin cancer? At least two of the three reviewing physicians concluded that:
 - a. 49 did have skin cancer (unanimous opinion: 45).
 - b. 23 did not have skin cancer (unanimous opinion: 18).
 - c. In 15 instances information was insufficient to make a clear-cut decision (unanimous opinion: 1).
2. What was the underlying cause of death? At least two of the three physicians concluded that:
 - a. 39 died of skin cancer (unanimous opinion: 32).
 - b. 26 died of other cancer (unanimous opinion: 15).
 - c. 3 died of causes other than cancer (unanimous opinion: 0).
 - d. 3 died of causes unknown, but not skin cancer (unanimous opinion: 0).
 - e. In 16 instances information was insufficient to make a clear-cut decision (unanimous opinion: 3).
3. Could the 39 deaths clearly due to skin cancer have been avoided? At least two of the three physicians concluded that:
 - a. 22 could have been avoided (unanimous opinion: 15).
 - b. 3 could not have been avoided (unanimous opinion: 0).
 - c. In 14 cases information was insufficient to make a clear-cut decision (unanimous opinion: 3).
4. What factors were involved in the deaths from skin cancer? All three physicians reviewing the questionnaires agreed that delay by the patient was a factor in causing death in most of the cases in which death could have been avoided. Physician error in selecting the type of treatment or in extent of treatment given was an additional factor in about

one-third of the 22 deaths judged to be avoidable. Patient refusal of treatment was also a factor in one-third of the deaths. The advanced age of many of those dying of skin cancer was undoubtedly a major factor in their deaths. More than half were 75 years of age or over at time of death (Table 1).

Cell Type

Table 2 shows that squamous cell carcinoma accounted for three-fourths of the deaths. This is in sharp contrast to the distribution of cell type generally found among skin cancer cases. Data on 11,066 skin cancer cases (with type specified, excluding melanoma) reported to the California Tumor Registry for the years 1942-1956¹ showed that only 38 per cent were of the squamous cell type; the majority were basal cell carcinomas.

Discussion

The study has shown that the number of deaths in California coded to skin cancer as the underlying cause is greater than the number which should properly be attributed to this cause. Instead of the 130 deaths coded to skin cancer in 1959, the study indicates that the true number was probably between 40 and 50. Almost all the deaths (in cases in which enough information was available to make a decision) could have been avoided. Delay by the patient was the most prevalent factor reported by the certifying physicians, while refusal to accept

treatment and, in some cases, the mode or extent of treatment were deemed to be factors in the deaths. Only three deaths were judged to be unavoidable, although the opinion was not agreed to by all three reviewers. Reasons given by the physicians for unavailability were "adequately treated initially," "early metastasis" and "resistant to radiation."

The discrepancy between the total number of deaths coded to skin cancer, 130, and the number of deaths found to be due to skin cancer in the study (39, with possibly a few more among the 16 in which no decision could be reached because of the inadequacy of the information) was due to the sparse and ambiguous information recorded on some death certificates and to the use of arbitrary rules necessary for coding such certificates. Statements such as "carcinoma, squamous cell," "carcinoma of face" and "epidermoid carcinoma, with cervical node metastasis" are difficult to categorize properly, and are assigned to skin cancer by current coding rules. Improved certification of the cause of death by the physician and changes in coding rules should increase the validity of the category "skin cancer" as a cause of death.

What is most pertinent, however, is that California, with a population of about 15,000,000 in 1959 and an estimated occurrence of 6,000 new skin cancer cases every year, experiences a very small number of deaths from skin cancer. One possible interpretation of these findings is that skin cancer seldom causes death and is therefore not a serious disease. Another interpretation, and probably a more correct one, is that skin cancer is not a serious disease in California today because of the high level and availability of existing medical practice and the apparent willingness of most persons to seek early medical attention for skin lesions.

Continued education of the physician and the general public regarding early diagnosis and adequate treatment of patients with skin cancer should reduce even further the small number of deaths due to this disease.

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TABLE 1.—Age at Death for Those Dying of Skin Cancer

Age (Years)	Died of Skin Cancer*	Death Might Have Been Avoided*
Total	39	22
Under 50	3	3
50-54 .....	.....	.....
55-59	3	1
60-64	2	1
65-69	6	2
70-74	4	2
75-79	5	4
80-84	7	4
85-89	6	4
90 and over.....	3	1

*In the opinion of at least two of three physicians who reviewed death certificates and other data.

TABLE 2.—Cell Type of Skin Cancer Causing Death

Cell Type	Died of Skin Cancer*	Death Might Have Been Avoided*
Total	39	22
Squamous	29	16
Basosquamous	3	3
Basal	5	3
Undetermined	2	.....

*In the opinion of at least two of three physicians who reviewed death certificates and other data.

CANCER QUACKERY

Its Control in California

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FOR MANY YEARS, it has been generally considered that California has had the largest number of cancer quacks in the United States. Less well known are the newer control measures being used in California and the modest but measurable success of these measures. The most successful and important is the program authorized by Senate Bill No. 194 of the 1959 California Legislature. Dr. Malcolm Merrill, director of the California Department of Public Health, described the organization, activities and progress of the program in the September, 1964 issue of *CALIFORNIA MEDICINE*.⁷ The program was limited to five years, and its continuation has been requested of the 1965 Legislature. The CMA House of Delegates in 1965 affirmed the Association's support of continuation of the program.

In explanation of the need for the program, a brief review of quackery may be useful. Cancer quackery is an enormous problem. The usual definition of quackery is "a boastful pretense to medical skill," and in the extreme types this definition is adequate. On the other hand, where does quackery merge into incompetence or malpractice by the practitioner? What are the boundaries between investigation of a new or unusual type of treatment and quackery? Because of this vagueness, the immeasurable extent of motives in quackery, and for obvious legal reasons, the California Medical Association and the American Cancer Society do not have "committees on quackery," but rather Committees on New and Unproven Methods of Cancer Treatment. Despite the difficulty in formally de-

fining quackery, the term is quite widely understood to include pretense and deceit.

Attributes of quacks have been more carefully described, notably by Garland,⁶ but in brief, a quack drug or device has the following characteristics:

1. It is generally secret.
2. It is advertised (although this is decreasing, and word-of-mouth referrals or planted news stories have supplanted the paid advertisement).
3. It is limited to one proponent (or that implication is given—although actually, some types of quackery are national and international businesses).
4. It is poorly documented (clinical and other records are incomplete or absent. This may be a protective device, or a natural concomitant of the inferior training and skill of the quack).
5. It is most highly praised by those who are least qualified in this area of judgment (politicians, the press and authors are often cleverly used by quacks); or
6. Its proponent is persecuted by the "medical trust," usually the American Medical Association, but also, often, the American Cancer Society.
7. It is often a discarded orthodox drug or form of therapy. It has been stated that quacks are generally 50 years behind in their theories and correctness of thought—but not in their advertising and psychology. (Sad to say, the control of quackery is more archaic than the quacks and their supporters.)

The importance and prevalence of cancer quack-

Submitted December 4, 1964.

Dr. Doyle is the immediate Past President of the California Medical Association. He is a former member of the Commission on Cancer and a former chairman of the Committee on New and Unproved Methods of Cancer Treatment. Dr. Miller is Director of Scientific Activities of the California Medical Association.

ery are hard to determine. At the First National Congress on Medical Quackery,⁸ the then Secretary of Health, Education, and Welfare, Abe Ribicoff, estimated that one billion dollars was spent on quackery annually. As the total spent for health care was 19.7 billion dollars, this means that one-twentieth of the health care expenditures was wasted or worse. And this indicates the problem is important. Quacks are secretive, and much of their work is poorly documented. It is known that one clinic in California took over one million dollars from 3,000 patients in a period of five years.

The waste of money is not the most important problem caused by quacks. Far more important are the delay of curative treatment in the early stages of the disease, the less effective management of advanced disease and the false promises given to the patient and the family. In addition, diversion of research funds and time to investigate quack cures is a serious consideration.

The control of cancer quackery involves a variety of agencies and activities. On the federal level, for example, the Food and Drug Administration is responsible for protection of the public in cases of interstate commerce involving misbranding, false labeling and health devices. Other agencies of the Federal Government include the Federal Trade Commission, which is concerned with advertising; the Post Office Department, which is concerned with use of the mails to defraud; and the Department of Justice, which works with all of the above agencies in enforcement and litigation. The roles of these agencies are strictly and carefully circumscribed by law.

The American Medical Association has been active in the control of medical quackery for more than 50 years. Through its Committee on Quackery, and Department of Investigation, the American Medical Association maintains voluminous files on the subject, educates the profession and the public and serves as a coordinating and consultative agency in actions against quacks. The American Cancer Society has collected much material and published several reports on specific types of unproved cancer treatment methods. The society also has prepared many educational booklets and exhibits.

Despite this impressive array of voluntary and governmental action, there must be supplementation by effective local and state enforcement, by collection and dissemination of information on quacks from on-the-spot sources, and by the creation of a favorable climate of public and legal opinion. To a limited extent, these elements are being achieved in California, but only after long and arduous labor.

California has been a lush country for the unorthodox. The use of South American Indian head-shrinking compounds to cure cancer is a notable

example. The institute testing the drug finally closed its doors, but the compounds may well reappear in some other setting. The "grape cure" for cancer is a California product, but this may be a transplant from an earlier Mediterranean birthplace. Doctor Albert Abrams once a professor of pathology at Cooper Medical College in San Francisco, propounded electronic medicine several decades ago in California. Eventually this system included a diagnostic method using a drop of blood. The diagnosis, and even the religion of the person supplying the specimen could be determined—or so it was said. To this day, the system has its own foundation and exponents in California. Fallacies which originated elsewhere soon migrated to the state.

The Commission on Cancer of the California Medical Association, created in 1931, had long been aware of the quackery, but not until after World War II was an energetic campaign begun. As the nine Commissioners began their studies, a series of investigative steps was devised. The steps included:

1. Determination of the precise nature of the drug used in the treatment;
2. An interview with the proponents and collection of information on their training and experience;
3. Examination of experimental, clinical and pathological evidences (if any) offered by the proponent;
4. Independent analysis of the drug;
5. Use of the drug in a controlled setting;
6. Consultation with authorities from outside the state; and
7. Publication of results of the investigation.

The Commission conducted and published three such investigations, one each on Laetrile,¹ Gregomycin² and Arginase.^{3,4} None was found to be an effective treatment agent, but the studies did not appreciably affect the sale or use of the first two agents. Therefore, because of the time and money needed for the studies and the need for effective legal enforcement, the Commission began, with several other interested groups, a drive for legislative control of quackery.

This was a tremendous battle which lasted several years, but eventually the mass media, California Medical Association, American Cancer Society, California Nurses' Association, California State Department of Public Health, Federation of Women's Clubs, Parent-Teachers Association and several labor unions were successful. On Friday, June 5, 1959, Governor Edmund Brown signed into law the already mentioned Senate Bill 194,¹⁰ creating a Cancer Advisory Council in the State Department of Public Health, regulating drugs, medicines, com-

pounds and devices used in the diagnosis, treatment and cure of cancer.

The *Stanford Law Review*⁹ summarized the bill in the following statement:

"Under the provisions of the bill, a Cancer Advisory Council, including nine physicians and surgeons and three laymen, is appointed by the Governor. The Department of Health is granted authority to investigate and test the content, preparation, or use of any drug or device used for the diagnosis or treatment of cancer and to require that any person representing that he is engaged in the diagnosis or treatment of cancer supply samples and information about the remedy. After a hearing, and upon recommendation of the Cancer Advisory Council, the Department may issue a cease and desist order where a drug or device is found to be either harmful or of no positive value. Violation of this order constitutes a misdemeanor, and if the defendant persists in using the drug or device, the Department may obtain an injunction prohibiting its further use. The bill specifically excepts persons depending solely upon prayer to aid in healings, and drugs or devices intended solely for investigational use by qualified experts.

"In the light of the preceding examination of the existing laws, the cancer bill is significant for several reasons. It provides a board of qualified experts cutting across all jurisdictional provisions of the licensing statutes in order to concentrate entirely on the efficacy of the treatment in question. It eliminates arguments over good faith and leaves scientific determination of the value of the drug or device to independent experts rather than to lay jurors. For the first time, sanctions are provided in the case of drugs which are not harmful but only worthless. The bill avoids the difficulties involved in proving a specific intention to violate the operative provisions. Finally, the orientation of the entire bill is directed toward giving effect to several important public interests—the protection of health, the prevention of financial loss to individuals, the apprehension of crime and the raising of medical standards."

As was noted by Dr. Merrill in his previously mentioned report,⁷ the Council and staff have made considerable progress. Regulations by the State Board of Public Health prohibit the prescription, administration, sale or other distribution of the following diagnostic and treatment agents in the diagnosis, treatment, alleviation or cure of cancer: Bolen Test, Hoxsey Remedy, Koch Synthetic Antitoxin, Lincoln Staphage Lysate, Laetrile and Mucorhycin.

After the battle for the new law was won, public and professional groups in California congratulated themselves and relaxed in the hopeful thought that

cancer quackery in California was a thing of the past. This was soon realized to be untrue, and in the past year new educational ventures have been inaugurated. A packet for professional speakers on quackery has been assembled and given to the county units of the Cancer Society and Medical Association. A large exhibit on quackery has been produced by the California Department of Health and has been used at the State Fair and other similar assemblies, both public and professional. A three part course for teachers, health educators and medical administrators on medical quackery will be given at San Francisco State College in 1965. Finally, a second edition of a brochure on improved cancer treatment methods has been published by the Committee on Cancer,⁵ and copies are available upon request. Despite the work of these many agencies in the control of quackery, much remains to be done. Despite the increase of interest in science in our schools, many students at all levels graduate without real appreciation of the scientific method or logic. False generalizations, the worship of coincidence, the substitution of emotions for facts, and the desire for the miraculous have in no way decreased in recent years.

Certainly the most immediate important thing physicians and medical organizations can do in this regard is ensure legislation continuing the control program of the California State Department of Health. The California Medical Association's Committee on Cancer, Commission on Communications and Committee on Legislation have joined with other interested agencies to form a liaison committee for this purpose.

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Treatment of Barbiturate Poisoning

The Use of Peritoneal Dialysis

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■ *In a case of severe phenobarbital poisoning successfully treated by peritoneal dialysis, a total of 2.24 gm of the drug was removed during two periods of dialysis. (The patient is believed to have taken 10 gm.) This compares favorably with amounts that can be removed by hemodialysis. The technique is simple, safe and effective. It should be considered for use in cases meeting the criteria for its use.*

BARBITURATES are the drugs most often reported as the cause of poisoning and are said to be the cause of 15 per cent of all poisoning cases.¹⁷ The vast majority of such cases can be dealt with by conservative management. In some instances of progressive deterioration, however, a rapid rate of drug elimination might shorten the recovery period and could even save the patient's life. The case reported herewith is one in which severe phenobarbital poisoning was successfully treated by peritoneal dialysis. It is suggested that this technique has a place in the management of this condition.

Several types of therapy have been recommended for barbiturate poisoning. The impressive results reported by several groups utilizing conservative, supportive measures attest the validity of this therapeutic approach.^{8,18} Even so, management of deeply comatose patients is difficult, intensive nursing care is necessary, the morbidity high, and a significant number of deaths are reported despite intensive therapy.^{13,17} Some investigators have recommended the use of respiratory and central nervous system stimulants, but it appears that the hazards of the administration of these agents outweigh the benefits

to be derived.^{8,15,19} Recent studies have shown that urinary excretion of barbiturates may be enhanced by forced diuresis and by alkalinization of the urine.^{1,11}

Some aspects of barbiturate metabolism should be considered in assessing the potential value of therapy. Short-acting barbiturates are inactivated by the liver and are eliminated fairly rapidly. A large part of these short-acting drugs in plasma is protein-bound.²¹ Deep coma generally occurs at plasma levels of 2 to 4 mg per 100 ml and the potentially fatal level is about 3.5 mg per 100 ml.^{20,23} On the other hand, long-acting drugs are eliminated by renal excretion. Only 20 to 40 per cent of phenobarbital in the circulating blood is bound to plasma protein. With long-lasting barbiturates deep coma occurs at plasma levels of 8 to 12 mg per 100 ml and this level is potentially fatal.^{20,23} Effective dialysis depends on the gradient between blood and dialysate and on the ability of the toxic substance to cross the dialyzing membrane. Because of these pharmacologic characteristics the long-acting drugs should be more easily removed from the plasma than short-acting ones by any method of dialysis.

A synergistic toxic action between barbiturates and ethanol has been reported, and deaths have oc-

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curred from this combination although neither drug was present in ordinarily fatal doses.⁹ Such combined intoxication represents another situation where rapid removal of the drug is indicated. Finally, barbiturates alone are capable of producing irreversible brain damage.²² By lowering plasma levels, tissue concentrations are concomitantly lowered and such damage prevented.¹⁶

The successful use of hemodialysis in lowering blood barbiturate levels and decreasing the expected period of coma has been reported by several observers.^{12,13,20} Schreiner outlined the conditions necessary for effective hemodialysis. These include the following: (1) that the poison is dialysable, (2) that the poison be well-distributed in accessible body fluid compartments, (3) that there is a relationship between toxicity and blood level and (4) that the amount dialyzed constitutes a significant addition to the normal body mechanisms for dealing with the poison. He further listed the indications for hemodialysis in barbiturate poisoning. These include: (1) progressive deepening of anesthesia or progressive deterioration of the patient's condition, (2) ingestion of a potentially fatal dose, (3) blood level in the potentially fatal range, and (4) development of any severe complication. These indications are equally applicable to the use of peritoneal dialysis.¹⁰

The principles of peritoneal dialysis and its relative effectiveness and applicability have been described.^{3,6,14} Although it is less efficient than hemodialysis, the technique is an effective one for removing many toxic substances from the blood. In addition, it is a simple technique and does not require the elaborate mechanism and trained personnel needed for hemodialysis. Despite its potential value, however, there is a paucity of material relating to use of this procedure in barbiturate intoxication.

In 1954 Lackey reported on the use of peritoneal dialysis in experimentally produced pentobarbital intoxication in dogs. He found that recovery of the drug was small and that treatment had no effect on the course of recovery.¹⁰ In 1951 Muirhead¹⁵ suggested that peritoneal lavage might be an effective means of therapy for barbiturate poisoning in humans. Thus far only four reports describing this technique have appeared in the literature. Maxwell,¹⁴ in 1959, made the first report of the use of peritoneal dialysis in the treatment of severe barbiturate poisoning. In that case a total of 1.620 mg of barbiturate (secobarbital and amobarbital) was removed with a dialysate volume of 56 liters. Cohen⁴ utilized peritoneal dialysis in a comatose patient with amobarbital overdosage. The blood level was 1.65 mg per 100 ml. Here, however, only 129 mg was recovered from the dialysing fluid. This unimpressive result was one of the factors prompting a

recent editorial comment suggesting that "owing to the relatively slow rate of clearance, it is improbable that peritoneal dialysis will ever have much of a place in the treatment of intoxication with dialysable poisons."⁷ Del Greco⁵ reported three cases treated with peritoneal dialysis. Results were unimpressive. One patient was believed to have improved as a result of therapy. The other two showed progressive deterioration. One died and the other required hemodialysis. The amounts of drug recovered in the dialysate were not stated. Berman² recently reported four cases in which peritoneal dialysis was effective in lowering blood barbiturate levels. An important observation in those cases was that the addition of albumin to the dialysis fluid almost doubled the rate of drug removal.²

Report of a Case

A 46-year-old white woman was found on the morning of admission (7 October 1963) in a comatose state at her home. Her general health had been good throughout most of her life except for "asthma" for five or six years that had necessitated use of bronchodilator agents intermittently. For several months before admission, she had regularly ingested large amounts of alcoholic beverages. On the evening before admission she retired at the usual time and was found approximately 12 hours later in coma. A bottle that had contained 100 phenobarbital tablets, 0.1 gm each, was found empty at her bedside. (Following recovery she admitted having ingested the entire amount.) When examined in the emergency room her blood pressure was 80/0 mm of mercury, the pulse rate 80 and weak. Respirations were not evident. The patient was pale and cyanotic. No evidence of external trauma was noted. The pupils were widely dilated and reacted minimally to light. Heart tones were poor with a regular sinus rhythm. The patient was areflexic and insensitive to deep pain. Barbiturate content of a specimen of blood was 13.25 mg per 100 ml.

An endotracheal tube was inserted and resuscitative efforts were begun. Cardiac arrest developed and external cardiac massage was undertaken. The period of asystole lasted approximately 30 seconds. Metaramenol (Aramine®) given intravenously sustained the blood pressure at 120/76 mm of mercury. Ethamivan, 150 mg intravenously, had no effect and an hour later 10 mg of methylphenidate hydrochloride was given intravenously, also without effect. In the recovery room, tracheostomy was performed, a peritoneal catheter was inserted and dialysis begun. Twelve hours after admission respirations became spontaneous and mechanical support of breathing was discontinued. Angiotensin was given intravenously and the blood pressure was maintained at approximately 110 mm systolic and 70 to 80 diastolic.

On 9 October 1963 blood pressure was adequate without pressor agents. The patient also showed transient response to deep pain stimuli and for several hours had 2-plus deep tendon reflexes which were bilateral and equal. Bronchoscopic examination was carried out because of apparent right middle lobe atelectasis. The first dialysis was begun shortly after admission and lasted approximately 36 hours. A total of 1.42 gm of phenobarbital was removed. The blood level following dialysis was 6.2 mg per 100 ml. Because of the continued elevation in blood level and the resistant comatose state, a second dialysis was begun on 11 October 1963 and continued again for 36 hours, 0.83 gm of phenobarbital being removed and the plasma level then being 3.5 mg per 100 ml. Chart 1 shows a comparison of the amounts of drug removed from urine and from the dialysate. During dialysis the patient began to have spontaneous movements and to react to deep pain. Immediately after completion of dialysis she opened her eyes on command. On 14 October 1963 she responded to questions, moved all extremities and spoke. Neurological examination revealed right-sided facial weakness and ipsilateral hemiparesis with generalized incoordination. The Babinski sign was not elicited. An electroencephalogram was within normal limits. By 20 October the patient was fully ambulatory with only minimal evidence of right-sided hemiparesis.

Discussion

Several points regarding the case here reported deserve comment. The total amount of barbiturate removed by dialysis was 2.24 gm. This compares favorably with amounts removed by hemodialysis. During the seven-day period of treatment the blood level fell from 13.25 mg per 100 ml to 3.2 mg. At the same time only 0.4 gm of barbiturate was excreted in the urine. At this slow rate of spontaneous elimination, it seems reasonable that without dialysis the period of coma would have been greatly prolonged.

Also of interest is that while the amount of drug removed by dialysis was impressive, it was only approximately 20 per cent of the amount presumably ingested. A total of 25 per cent of the ingested amount was removed from the body by dialysis and urinary excretion. Since consciousness returned following removal of this amount, it seems reasonable that the remaining 75 per cent (assuming complete gastrointestinal absorption) was either metabolically inactivated or that tissue levels were reduced enough to permit recovery. Since there is no pharmacologic evidence for the first possibility, the latter is probably valid. This view is further

substantiated by the finding of continued urinary excretion of small amounts of phenobarbital fourteen days following the last dialysis.

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Radiation Therapy of Cancer

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FEW BRANCHES of medicine have grown as rapidly and diversely as have all aspects of the science of radiology, radiobiology and the medical applications of nuclear science.

In commenting on the rapid growth of the use of ionizing radiation, Scott⁸ said that "prior to World War II, all of the radium and radioactive materials in use in the entire world did not exceed three pounds." At present, tons of radioactive materials are being produced by thousands of workers in this new industry.

Andrews¹ defined the science and the art of clinical radiation therapy as the optimal combination of the variables of tissue susceptibility (radiosensitivity) and of the quantity, quality and time of irradiation and applying them to bring about a predictable clinical effect.

The value of radiation therapy is fully appreciated when it is realized that the only way cancer can be successfully controlled is by surgical operation, radium therapy or x-ray therapy, used singly or in combination. There is no scientific evidence to indicate that the incidence of cancer, in general, is decreasing. Some forms of cancer (for example, cancer of the stomach and uterus) are decreasing and others are increasing (leukemia, malignant lymphomas, for example). Cancer is the second most common cause of death from disease in children. Even if the causes and cure of cancer were discovered today, there would still be the need for radiation therapy for a considerable period.

One of the most important things to be con-

sidered in connection with radiation therapy of cancer is the damage that can be done by misdirected treatment or overtreatment and the tragedy that can ensue from less than optimal treatment. Therapeutic radiation should be planned, directed and carried out only by physicians thoroughly and particularly schooled and skilled in this method of treatment.

Mode of Action of Ionizing Radiation

The primary objective of ionizing radiation is to destroy the malignant cells with as little damage as possible to the normal surrounding cellular structures. The major concern of the radiation therapist is with the amount of absorption of the beam of ionizing radiation which penetrates the tissues and not with that which passes through the body.

All cells are affected in some degree when exposed to ionizing energy. Fortunately, normal cells have a greater capacity to recover. All cells, both malignant and non-malignant, have varying degrees of radiosensitivity. The more radiosensitive the cells, the greater the response to ionizing energy. Radiosensitivity and radiocurability are not synonymous terms. A malignant tumor may be composed of highly radiosensitive cells but have a low curability factor.

Cells that are actively dividing, that are in high state of metabolic activity and that are less differentiated are usually the most radiosensitive. Highly radiosensitive tumors have the capacity to disseminate widely through vascular or lymphatic channels and to recur if inadequately treated.

Desjardins³ has listed the relative radiosensitivity

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of the various body cells and tissues in the following decreasing order:

- Lymphocytes
- Granulocytes
- Epithelial cells
- Endothelial cells of the pleura, peritoneum, and blood vessels
- Connective tissue cells
- Muscle cells
- Bone cells
- Nerve cells

Even though some malignant tumors are considered to be relatively radioresistant, one cannot always predict what the radiation response will be until it is tried. However, radiation therapy should not be attempted in such cases unless it is either primarily the best form of therapy or other methods of therapy are no longer applicable. As a general rule, the first course of radiation therapy is most likely to produce the best results. Subsequent radiation is usually much less effective. Once a full course of radiation has been given, only under very special circumstances can adequate additional radiation be administered. There is a tolerance limit for all tissues, and excessive radiation therapy will produce complications of varying degrees of severity. Yet the radiation therapist must take certain calculated risks when treating radiocurable malignant tumors just as does the surgeon.

The Unit of Dose Measurement

The unit of measurement which is most familiar to physicians is the roentgen. When one roentgen of x-ray or gamma rays is passed through one milliliter of air, two billion ion pairs are formed. The definition of a roentgen is as follows: "One roentgen is an exposure dose of x-radiation or gamma radiation such that the associated corpuscular emission (electrons produced by the x or gamma rays) per 0.001293 gram of air produces, in air, ions carrying one electrostatic unit of quantity of electricity of either sign."

The unit which is coming into more general usage is the rad. The rad indicates the amount of absorbed energy and can be used for x-rays, gamma rays, neutrons and alpha and beta rays. One rad represents the absorption of 100 ergs of energy in one gram of matter. For practical purposes for the present ranges of radiation therapy, one roentgen is on the average equivalent to approximately 0.97 rad when the soft tissues are irradiated.

Tumor Dose

Radiation therapy doses should be reported to the referring physician as so many rads or roentgens delivered to the tumor in so many days, and the report should state the dates of the beginning

and ending of the radiation therapy. To be more exact, the maximum tumor dose (delivered to the center of the tumor) and the minimum tumor dose (amount delivered to the periphery of the tumor) should be stated. Also to be made a part of the report is the type of equipment used and the half value layer (hvl). The term *half value layer* refers to the amount of absorber necessary to reduce the beam of ionizing energy by one-half as it emerges from the radiation source. Stating only the amount of the dose in air has very little meaning. The size, number and location of the treatment fields should be indicated, and any complications which may have occurred during radiation therapy.

Fractionation and Dose-Rate

A great deal of important research in radiobiology with respect to fractionation, dose-rate and cell survival has been done during the past ten years. The techniques for the study of the effects of irradiation on cells in vivo and in vitro have greatly increased our knowledge in radiobiology.

By *fractionation* is meant the distribution of the total tumor dose in two or more treatments over a period of weeks or, in some cases, months. Usually patients tolerate the radiation therapy much better when it is fractionated, and the margin of safety is also improved. Some therapists spread the fractionated treatment over a period of three months or more, but average time for the delivery of the total tumor dose for most deep-seated cancers is approximately five to six weeks (1000 to 1500 r or rads tumor dose per week). Much clinical research remains to be done to determine the optimal period of time and dose-rate for the delivery of a calculated tumor dose to each type of cancer.

The importance of adequate cellular oxygenation at the time of irradiation has been pointed out by Gray⁴ and his associates. It has been estimated that hypoxic cells will require between two and three times the dose of radiation to destroy them that adequately oxygenated cells do.

In 1954, Churchill-Davidson and coworkers² began a clinical trial of irradiating patients with advanced cancer while they were breathing oxygen at 3 and later at 4 atmospheres of absolute pressure. Their results have encouraged them to continue this important experimental study. In 1961 Mallams and coworkers began the use of hydrogen peroxide as a source of oxygen in a regional intra-arterial infusion system in the treatment of patients with advanced cancer in an attempt to improve the end results.

Sambrook⁷ uses a split course method of radiation therapy. Using this technique, he has never seen clinical evidence of renewed growth of a tumor

in under six to eight weeks after a dose of approximately 2,500 r has been given in two weeks. The split course method with the interposition of a four-week rest period gives the patient a complete respite during the course of treatments and also spares to some extent the normal tissues and permits normal recovery to begin.

The results of the numerous current studies, both clinical and experimental, concerning the dose-time relationship should certainly facilitate improvement in radiation treatment methods.

Cure or Palliation

Before proceeding with radiation therapy, it must be determined whether cure is possible by this method, or only palliation can be achieved. Biopsy confirmation of the type of tumor, if at all possible, should be obtained. The cell type will indicate to a large extent the radiosensitivity of the tumor. The extent of the disease—whether localized, confined to the regional lymph nodes or disseminated—is of great importance in determining the prognosis and the amount of radiation therapy required. Further considerations are the anatomic location of the tumor, whether or not the patient is in good condition, the presence or absence of sepsis, the status of the hematopoietic system and the patient's mental outlook. In other words, the patient's general status is evaluated as well as the tumor.

It is unfortunate that diagnostic methods are not available which will clearly indicate the exact extent of a cancer. Clinically and radiographically the cancer may appear to be localized when, in fact, dissemination may have occurred but has not become detectable. Many operations would be eliminated and treatment planning could be more appropriately done if the exact anatomic stage or extent of the disease could be determined.

Once it has been decided to give a course of therapy, consideration should be given to whether or not other modalities should be combined with it. A method of therapy should not be decided upon merely because the physician in charge of the case has had experience with only one type of therapy—the method should be the best for the particular patient regardless of who is going to do it.

If only palliation is the objective, then again it should be decided whether it should be by surgical operation, by radiation, by hormone, steroid or chemotherapy, or by a combination of means and methods. There are definite indications for the use of each of the various methods for providing relief for the patient.

Relief of symptoms such as pain, hemorrhage, intractable cough, inability to swallow, intestinal obstruction secondary to tumor, edema such as is

produced by lung carcinomas with an associated superior vena caval syndrome, pathological fracture, spinal cord compression, varying degrees of paralysis secondary to brain metastasis from breast or lung—these are some of the conditions for which palliative radiation can be effective.

No other method of therapy has ever produced more consistent palliation in a greater number of cases of various types of cancer with less mortality and morbidity than has radiation.

If a patient has widespread disease such as is present with many malignant lymphomas, aggressive therapy must not be done. The patient should not be made more uncomfortable by too vigorous therapy in the presence of hopeless disseminated disease. It is essential that the radiation therapist have excellent training and wide experience because he will frequently need to combine other methods of therapy with radiation at some time during the course of the management of patients with far advanced disease. The successful management of the patient with cancer requires teamwork and the radiation therapist must collaborate with the patient's referring physician.

Radiation—Equipment and Sources⁹

Contact x-ray therapy (40-60 kv)

Superficial x-ray therapy (60-140 kv)

Intermediate or medium voltage therapy (140-185 kv)

High voltage orthodox, conventional, deep x-ray therapy (200-300 kv)

Supervoltage therapy (400-1,000 kv)

Cesium 137 teletherapy

Megavoltage therapy

X-rays generated by the one and two million volt GE alternating current resonance transformer and the two Mev. Van de Graaff constant potential electrostatic generator

Gamma ray teletherapy using from 10-50 gram radium packs

Cobalt 60 teletherapy

Linear accelerator 4-50 Mev. electrons or x-rays

Betatrons: electrons or x-rays

Cyclotron: protons, deuterons, alpha particles

Synchro-cyclotron: protons, deuterons, alpha particles

Synchrotron: electrons

Proton synchrotron

Bevatron

Cosmotron

} Protons

Interstitial and/or intracavitary therapy

Radium, radon seeds, cobalt⁶⁰, tantalum¹⁸², and iridium ¹⁹²

Systemic sources

Iodine¹³¹, and phosphorus ³²

Intracavitary use (pleural and peritoneal cavities)

Radioactive gold¹⁹⁸ and phosphorus³²

Radioactive isotopes administered internally or placed in the pleural or peritoneal cavities play a very minor role in cancer therapy. Iodine-131

(beta and gamma rays) is of value in the treatment of some thyroid cancers with disseminated disease and Phosphorus-32 (beta particles) is useful in the treatment of chronic leukemia and polycythemia rubra vera. Intracavitary administration of radioactive gold-198 (beta and gamma rays) may help prevent ascites or pleural effusion. Strontium-90 (pure beta emitter) is used in certain benign and malignant ophthalmic conditions. Cobalt-60, iridium-192, radium-226 and tantalum-182 are gamma emitters and may be employed interstitially when encapsulated in needles or tubes. Cobalt-60 and cesium-137 when used in large quantities at a distance (teletherapy) may be just as effective as high energy x-rays. Radium "bombs" or "packs" (a large quantity of radium, 10 to 50 grams) have been used in the treatment of cancer. Since cobalt-60 and cesium-137 are so much cheaper and more plentiful, these radioactive elements have replaced radium when used in this manner.

Radiation may be electromagnetic, such as x-rays or gamma rays, or particulate radiation—for example, alpha particles, beta particles, protons, neutrons, deuterons or electrons.

The only difference between gamma rays and x-rays is that gamma rays are emitted by radioactive sources such as radium and radioactive cobalt-60. X-rays are produced by certain types of electrically controlled units. Electromagnetic radiation travels with the speed of light and has the ability to penetrate the tissues of the body and other substances. Alpha particles have little penetrating power: even a sheet of paper will stop them. If alpha emitting isotopes are absorbed within the body, considerable harm may result. Beta particles or electrons have a penetrating power which is dependent upon their energy. They are exceedingly light in weight. Neutrons do not have an electrical charge. With fast neutrons, the ionizing particle is the recoil proton which it produces. Protons carry a positive charge and are used largely in nuclear research.

The biological effects of radiation are dependent upon whether radiation is given to the whole body in a single dose (total body radiation) or is given in repeated doses to a limited area as when it is delivered to a certain area of the body in a specified period in the treatment of cancer.

Megavoltage Therapy

Although megavoltage therapy was introduced over thirty years ago, there was no widespread interest or use of this modality until cobalt-60 became available in 1951.

Cobalt-60 equipment and radiation sources could be obtained at considerably less cost and required

much less space than some of the existing megavoltage units. The obvious advantages of megavoltage therapy, especially for the treatment of deep seated cancers, caused surgeons, urologists and other specialists to take renewed interest in the use of radiation therapy.

Megavolt means million volts. However, the words *supervoltage* and *megavoltage* have been used interchangeably to indicate one million or more electron volts of energy. Although cesium-137 sometimes is described as megavoltage equipment, it does not really qualify since its maximum energy is 661 kilovolts. It is not believed that this source of radiation will ever be widely used because of its penumbra and low output, in spite of its long half life (28 years).

The development of megavoltage equipment has not eliminated the use of superficial and conventional (orthovoltage, deep x-ray) x-ray therapy, nor was it ever intended to do so.

For any specialty to make progress, constant efforts must be made to perfect existing equipment or to develop new equipment and to improve present techniques. This is precisely the role of megavoltage therapy.

The physical advantages or qualities of megavoltage therapy as compared with conventional x-ray therapy (200-300 kv) in the treatment of cancer are as follows:

1. Maximum point of ionization (100 per cent dose) is located several millimeters beneath the skin, depending upon the energy of the radiation used. This results in skin-sparing and in more comfort for the patient. Since little or no skin reaction is produced even with large total doses, the radiation therapist must be experienced in its use in order not to deliver excessive doses to deep-seated tissues. The maximum effect is produced in the subcutaneous tissues or superficial layers of the fascia or muscles depending upon the energy of the radiant beam.

2. With the linear accelerators, betatrons and newer cobalt sources, it is possible to deliver a large tumor dose from target or source distances of from 80 to 100 cm from the skin.

3. There is considerable improvement in the depth dose when deep-seated tumors are treated. For example, with 250 kv equipment, a hvl 2.5 mm of copper and target skin distance of 50 cm, the depth dose delivered to 10 cm is approximately 40 per cent; for the 6 Mev. linear accelerator with target skin distance of 100 cm the depth dose delivered at 10 cm is 68 per cent.

4. Large fields can be irradiated. When "beam shaping" devices are used, treatment fields of any

size or configuration can be planned and provision made for protection of the tissues in the areas that are not to be irradiated. This may be very important when, as in certain cases of malignant lymphoma, one wishes to treat both sides of the neck both axillae and the mediastinum with one field, yet protect intervening tissues.

5. With more precise definition of the radiation beam and less side scatter, the volume of tissue irradiated is reduced. As a result of this and the skin-sparing effect, less radiation sickness occurs in the majority of patients.

6. The differential absorption between bone and the soft tissues is decreased, providing for more homogeneous dosage. There is less tendency for development of necrosis of cartilage or bone. Cancers located in the head and neck and in the pelvic regions can be more uniformly radiated and the tumor dose more precisely determined because of the increased uniformity of absorption of the ionizing radiation.

The place of megavoltage in cancer therapy has been clearly established. The mere fact that results as good as those obtainable by conventional x-ray therapy can be achieved with it is not enough to warrant its use. But an increasing number of scientific reports indicating an improved five-year survival for patients with certain types of tumor following the use of megavoltage therapy, and other factors such as ease of administration and tolerance by the patient, certainly indicate that all well-equipped radiation therapy treatment centers should have some type of megavoltage equipment available.

The major uses of megavoltage therapy will be in the treatment of cancer in the head and neck, the esophagus, brain, lungs, bladder and ovaries. It also is useful in certain other types of intra-abdominal, retroperitoneal and intrathoracic tumors.

The major interest in radiation therapy and in new therapeutic agents during the past 15 years has been in:

1. Equipment

- a. Improved cobalt-60 sources and equipment
- b. The potential therapeutic uses of cesium 137
- c. Electron beam therapy (4-70 Mev.)
- d. Neutron, proton and meson sources
- e. Improved radioisotope diagnostic techniques to determine precise tumor extent and localization

2. Radiobiology

- a. Use of tissue cultures and other methods to increase knowledge of the possible explana-

tion for the differences in radiosensitivity of the different types of tumor cells

- b. A reevaluation of the significance of relationship of time-dose in radiation therapy
- c. The need for precise knowledge of the metabolism of malignant cells

3. The use of preoperative radiation in the treatment of lung, bladder and breast cancer and of other malignant tumors.

4. The role of chemotherapy and particularly when combinations of surgical operation, chemotherapy and radiation therapy are indicated.

5. Teamwork is essential among the various specialists treating cancer in order that the patient may obtain the best possible therapeutic result.

6. The long overdue need for radiation therapy to take its proper place as one of the only two known methods by which cancer can be cured. This will only come about through complete reorganization of the teaching program for medical students and in the training of residents. Little or no information is given to medical students about radiation therapy and radiobiology. The training of the general radiologist is often meager with regard to radiation therapy.

Eventually, adequately staffed radiation therapy centers will have to be established because of the enormous initial cost and maintenance of a well-equipped therapy center.

Can Radiation Be Curative?

Can radiation therapy be curative? In some circumstances and at some sites the radiation therapist can produce curative results.

A few of the special types of cancer that can be successfully controlled by radiation therapy are basal cell and squamous cell carcinomas of the skin; seminoma and dysgerminoma; malignant lymphomas; carcinomas of the tonsil, of the oral cavity and of the larynx when limited to one vocal cord and the cord is movable; and carcinoma of the anus.

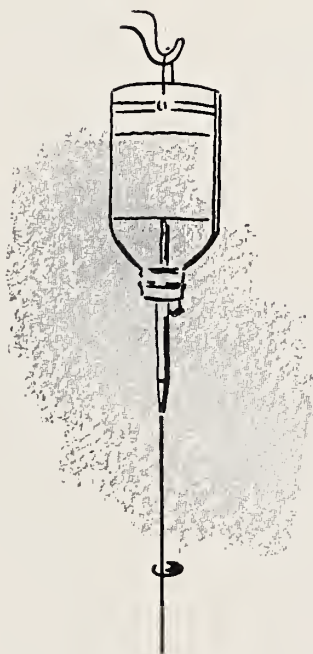
Radiation therapy can be very effective when combined with surgical operation in the treatment of carcinoma of the breast and urinary bladder, Wilms' tumors, metastatic carcinoma to lymph nodes, and when given preoperatively for lung and rectal carcinomas.

Approximately 65 per cent of all patients with cancer at some time or other in the course of their disease will be seen by the radiologist. No other single modality can be as effective when given for palliation. In a high percentage of localized cancer, excellent five-year survival results can be achieved by adequate radiation.

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CASE REPORTS

Serum Calcium Decrease After Purgation

Treatment of Hypercalcemia Associated with Mammary Cancer

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ACCORDING to a recent study of a large series of cases of carcinoma of the breast premature death of as high as 10 per cent of patients was threatened by the occurrence of hypercalcemia.¹ Chronic intestinal obstruction, renal failure, cardiac abnormalities and diffuse central nervous system toxicity, caused by this electrolyte disturbance, are hazards which demand that the most energetic therapy be directed to reducing the serum calcium level.

The purpose of this paper is to report experience with a patient with disseminated cancer of the breast in whom severe hypercalcemia developed. When all the recommended measures for reducing the calcium level had failed and death in uremia seemed imminent, normal serum calcium determinations were recorded during two separate intervals following drastic purgation. Brief but dramatic improvement in all particulars seemed to justify employment of this time-honored method of treatment.

Report of a Case

A 49-year-old woman was admitted to Eden Township Hospital on December 3, 1962, with complaint of general weakness, constipation, malaise and low back pain. On physical examination a large cystic mass was felt in the left breast. Needle biopsy proved it to be a medullary adenocarcinoma. A roentgenographic survey revealed numerous

areas of rarefaction in the calvarium, pelvis and lumbar spine. Morphologically the blood was normal and the hemoglobin content was 14 gm per 100 ml. The specific gravity of the urine was static at 1.010; it contained a trace of protein and many granular casts. The blood urea nitrogen was 64.5 mg, creatinine 2.5 mg, serum calcium 18.0 mg and phosphorus 4.0 mg per 100 ml. Bone marrow aspirate showed reactive hyperplasia. Serum proteins were within normal limits. An electrocardiogram showed pronounced ST segment depression in the precordial leads and prolongation of the QRS complex.

Despite a low calcium diet, a large fluid intake, administration of 300 mg of cortisone and 60 mg of prednisone daily and large amounts of aluminum hydroxide by mouth, the patient's condition deteriorated precipitously. She became rapidly weaker and more somnolent. The blood urea nitrogen rose steadily, reaching 107.5 mg per 100 ml on December 15, 1962 (see chart). Laboratory determinations of urinary calcium excretion varied between 250 and 397 mg per 24 hours.

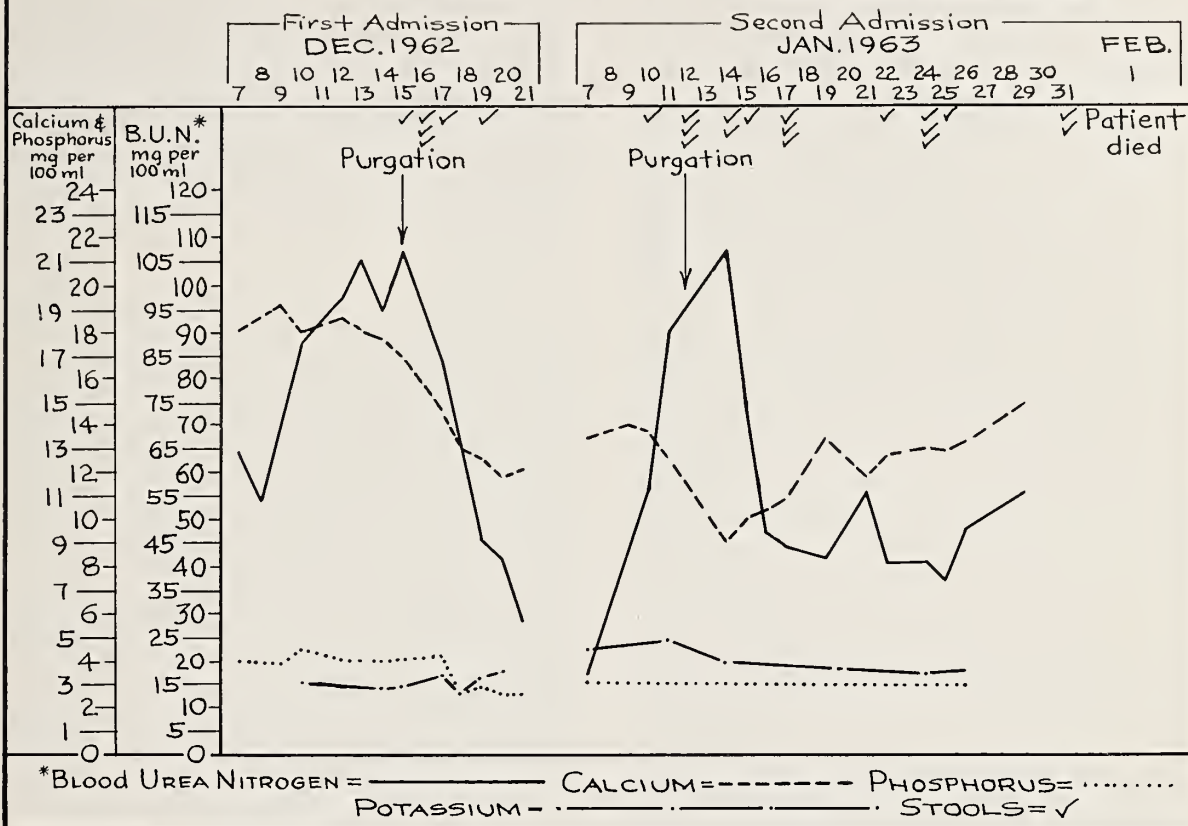
At this time it was noted that constipation, one of the patient's original primary complaints, had persisted. In the first ten days of hospitalization, despite intake of a fair amount of food with adequate fluids, no bowel movement occurred. On December 15 following several large doses of castor oil the patient had her first evacuation. This was followed on the next day by massive movements of formed and liquid stools. On December 17 blood studies showed the first significant fall in serum calcium level, to 14.6 mg per 100 ml, and blood urea nitrogen to 83.2 mg per 100 ml. The serum potassium which was reported as 2.8 mg per 100 ml on December 14 had risen to 3.4 mg on December 17. On this day a simple mastectomy was performed under thiopental sodium (Pentothal®) anesthesia without incident. In subsequent studies* of this tumor, vitamin D-like substances were not found.

After operation, pronounced and progressive

From Eden Township Hospital, Castro Valley.
Submitted June 19, 1964

*Bio-assay by method described in: Gordon, G. S., and Schachter, D.: Vitamin D activity of normal and neoplastic human breast tissue, Proc. Soc. Exp. Biol. & Med., 113:760, 1963.

CHART: BLOOD CHEMISTRY VALUES DURING COURSE OF ILLNESS OF PATIENT WITH HYPERCALCEMIA



improvement in the patient's mental status and general well being was noted. She was discharged from the hospital in an ambulatory state on December 23. At this time the serum calcium had shown progressive reduction to 11.7 mg and the blood urea nitrogen to 42 mg per 100 ml.

The patient spent the holidays with members of her family, who said that during that time she had been mentally clear for the first time in several weeks. However, severe bone pain recurred and she was readmitted January 6, 1963. A roentgenographic survey showed extensive progression of bone lesions and numerous pathologic fractures. The calcium level had risen to 13.4 mg per 100 ml although the urea nitrogen was 17 mg per 100 ml.

The clinical course was marked by progressively increasing somnolence, mental confusion and weakness. On January 10 the urea nitrogen had risen to 56 mg per 100 ml. On this day an attempt at oophorectomy had to be abandoned when paroxysmal ventricular tachycardia accompanied by profound shock followed pre-anesthetic medication. Continuous infusion of levarterenol (Levophed®) was required for a period of 36 hours and during that time less than 20 ml of urine was voided. Fol-

lowing this her condition stabilized and the blood pressure was maintained at 160 systolic and zero diastolic. This suggested at the time the possibility of aortic valve rupture or (as was shown at autopsy to be the case) massive arteriovenous shunting. On January 12 purgation was again employed with good effect. On January 14 the serum calcium was 9.0 mg per 100 ml. The urea nitrogen had again risen to 107 mg per 100 ml on January 19. The patient's condition, however, deteriorated rapidly and she died February 1.

Postmortem examination showed diffuse generalized carcinomatosis and remarkable calcification of the lungs, renal tubules and blood vessels throughout the body. Many of the bones, particularly the vertebra, had been reduced to hollow shells with only thin walls of calcium surrounding nodules of tumor.

Comment

Calcium homeostasis is maintained by balanced exchange at three sites:

1. At osseous depots, where deposition and reabsorption of calcium in the protein matrix is

under the control of the parathyroid among other endocrine influences.

2. In the kidneys, where tubular reabsorption of calcium is also under the control exerted by parathormone (in the absence of renal damage).

3. In the gastrointestinal tract, where absorption of ingested calcium from the diet occurs in the presence of vitamin D. At the same time large amounts of calcium (700 to 900 mg) are secreted into the intestinal lumen. Under normal circumstances nearly all of this is reabsorbed and whatever excess above that is contained in the diet is excreted in the feces.

Therapeutic measures to reduce serum calcium, therefore, are logically directed at each of these sites of exchange to induce the flow of ionizable calcium away from the circulatory system. Thus, corticosteroids are advocated for their effect of reducing the inflammatory process surrounding metastatic lesions in the bones, thereby lessening the amount of calcium released from bone. They are believed also to reduce the production of estrogens which may be carcinogenic. Hydration is an obvious though seldom successful method of increasing urinary excretion of calcium. A low calcium diet with the administration of aluminum hydroxide and phosphate may reduce the amount of calcium absorbed from the gastrointestinal tract.

It would appear that the most readily accessible site at which one might direct efforts toward calcium balance is the intestinal mucosa. It is estimated that 900 to 1,100 mg of calcium is absorbed daily by the small bowel. In the presence of diarrhea this must be considerably reduced, as is suggested by the older medical literature, which records hypocalcemia with resultant tetany as a frequent problem in cholera and dysentery.

It seems reasonable to postulate that, with an initial outpouring of calcium from metastatic lesions in bone, a moderate hypercalcemia is produced. This could induce atony of the intestinal musculature and arrest of peristalsis, with resultant increased absorption of calcium and further elevation of the calcium blood level. Thus, a vicious cycle is set up which must lead to death from the effects of hypercalcemia unless it is interrupted.

The patient in the present case had chronic intestinal obstruction for ten days while in the hospital. During this time she was given a diet very low in calcium. She excreted none by bowel and urinary excretion did not vary appreciably despite energetic hydration by mouth and administration of fluid by vein. Since the serum calcium levels fell only following the induced diarrhea and urea nitrogen decreased in direct time relationship on two occasions, it seems not unreasonable to attribute the former to the increase in fecal excretion and

the reduction of urea nitrogen to the resulting improvement in renal function. The improvement cannot be attributed to removal of the primary tumor as we at first thought possible, since no vitamin D-like substances were found in the removed specimen. Also the improvement began before the operation. Fear of aggravating the hypokalemia by purgation was not borne out by the seemingly paradoxical rise in potassium level which followed.

Summary

In a patient with severe hypercalcemia associated with metastatic breast carcinoma, renal failure, chronic intestinal obstruction, myocardial irritability and central nervous system toxicity threatened premature death despite therapy by the usually recommended modalities. Then, on two separate occasions a reduction of serum calcium level, clinical improvement and return of renal function came about after drastic purgation. Aggravation of concomitant hypokalemia did not occur.

It is suggested that purgation brought about the improvement by increasing the fecal excretion of calcium and reducing the amount of calcium reabsorbed by the intestinal mucosa.

Further study and experiment to test this simple and readily available means of controlling calcium homeostasis seems warranted.

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Treatment of Riedel's Thyroiditis With Desiccated Thyroid

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THE EFFICACY of thyroid therapy in reducing the size of nontoxic goiters has been documented² and amply confirmed.^{1,4,5,7,8} These studies demonstrated that goiter due to Hashimoto's disease readily re-

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The opinions or assertions contained herein are the private ones of the author and are not to be construed as official or as necessarily reflecting the views of the Medical Department of the Navy or of the Naval Service at large.

Submitted July 14, 1964.

sponds to thyroid supplementation and that goiter due to diffuse or nodular enlargement also diminishes, although the degree of response is not as great.¹ Heretofore, there has been little comment on using this mode of treatment in Riedel's struma, possibly because chronic thyroiditis of this type is infrequently encountered and also because surgical resection has been the treatment of choice. Hence, it is appropriate to record a case in which thyroid hormone therapy appeared to reverse this disease process.

Report of a Case

A 47-year-old man was first evaluated because of a mass in the left side of the neck that had been present a month and had increased in size two weeks earlier. The only symptoms noted were hoarseness and mild dysphagia, both present for three months. The patient said he felt no pain or tenderness in the mass or in the remainder of the neck and had had no symptoms of inflammatory disease of the respiratory tract. No symptoms of hypofunction or hyperfunction of the thyroid were present, and the body weight had not changed. There was no past or family history of goiter or other disease. However, the patient related that at age 18 he was given six weekly treatments with radium applied externally to the larynx. This treatment was for hoarseness and symptomatic relief followed.

Physical examination revealed a healthy appearing man with normal vital signs. The entire left lobe and isthmus of the thyroid gland were enlarged to three times the normal size and were extremely firm to palpation. No nodules were noted and the gland was not tender to touch. The right lobe was of normal size, smooth, and non-nodular. Lymph nodes in the cervical region were not enlarged.

Leukocyte count, hemoglobin level, sedimentation rate, urinalysis and an x-ray film of the chest were all within normal limits. The basal metabolic rate was +11.5 per cent, and the serum protein-bound iodine was 6.8 μgm per 100 ml. The thyroglobulin antibody fixation test was nonreactive. The thyroid I^{131} uptake at 24 hours was 14 per cent and the scintiscan of the gland showed no uptake in the left lobe, with normal iodine localization on the right side.

Because of these findings, surgical resection of the gland was performed. At operation, the left lobe was smooth and stony hard, and measured $7 \times 5 \times 4$ cm. The lobe was intimately adherent to the underlying trachea, and the left recurrent laryngeal nerve could not be identified in the tissue mass. The right lobe of the gland was normal in size and appearance, with a small nodule in the

upper pole. No lymph nodes were noted in the region. The left lobe and the isthmus of the thyroid gland were resected, and sharp dissection was required to free it from the underlying trachea.

The excised tissue was tan and rubbery firm. On microscopic examination, multiple sections showed dense fibrous tissue with a few compressed, poorly-formed, thyroid follicles. There was a diffuse and focal infiltration with mononuclear and plasma cells and infrequent giant cells. Along one margin of the tissue a ridge of normal-appearing thyroid gland was noted with focal interstitial fibrosis and diffuse mononuclear-cell infiltration. Many blood vessels throughout the fibrous mass showed decided alterations, predominantly of intimal fibrosis and diminution of lumen size. Several of the large vessels had intimal proliferation and diffuse infiltration of the vessel wall by plasma cells and eosinophils. At the edge of the section, a dense fibrosis was present encompassing large collagen fibrils, blood vessels, nerves and striated muscle. The pathologic diagnosis was chronic thyroiditis of the Riedel type.

The postoperative course was uneventful, but the patient noted increased hoarseness. Examination by indirect laryngoscopy revealed left vocal cord paralysis.

Nine months after operation the patient was again examined because of recent onset of swelling in the right thyroid region. Except for mild local pressure symptoms, the patient was otherwise without complaint and had no evidence of hypothyroidism. The right lobe of the thyroid gland was three times the normal size and was woody hard, without nodularity. Regional lymph nodes were not enlarged. Blood cell counts were still within normal limits and a thyroglobulin antibody test was negative. The protein-bound iodine was 6.6 μgm per 100 ml. Thyroid uptake of I^{131} was 18 per cent in 24 hours and the conversion ratio was 7 per cent. A scintiscan showed uniform uptake density in the right lobe but the lobe was slightly diminished in size in comparison with the previous study.

Because of the difficulty of the previous operation, a trial of conservative therapy was decided upon, the patient being given 180 mg of desiccated thyroid per day. Within four weeks the goiter had diminished to half its former size; and after five months the gland was of normal size and the patient asymptomatic except for residual hoarseness.

Comment

As the incidence of Riedel's struma is low (variously estimated at between 0.05¹⁰ and 0.4 per cent³ of thyroidectomies performed), the opportunities to observe the effect of thyroid substance on the

disease are limited. However, Werner⁹ recorded a patient with surgically inoperable Riedel's struma who had decided regression in the size of the gland after administration of full replacement doses of desiccated thyroid. In addition, some of the patients reported by Woolner and coworkers¹⁰ had apparent cessation of the disease process while on thyroid therapy, although the data do not indicate whether or not full replacement doses were given. Conversely, that report also included several cases in which spontaneous regression followed limited and incomplete surgical excision. Indeed, the possibility of spontaneous regression of this disorder was stressed by Riedel himself.⁶ However, the prompt diminution in thyroid size, noted in the present case after therapy, with desiccated thyroid, strongly suggests that the hormone was causative.

Recent studies indicate that enhanced endogenous secretion of thyrotropin is the cause of the goiter of Hashimoto's thyroiditis, and that perhaps such a mechanism is operative in other diffuse goiters. This evidence offers a rationale for the effectiveness of thyroid therapy in suppressing thyroid growth, since thyroid-hormone supplementation presumably would inhibit thyrotropin secretion and permit regression of the goiter. No such mechanism can be conjectured for Riedel's thyroiditis, however, since there are no data to support the concept of hyperthyrotropism in this disorder. The pathogenesis remains obscure and therefore any attempt to explain the therapeutic effect observed in this patient would be speculative.

Despite the inability to account for this effect physiologically, the observation is clinically important, if confirmed, since the results of the present method of treatment are not entirely satisfactory. If untreated, severe local-pressure symptoms often develop, and surgical resection is usually incomplete because of the extensive invasion of adjacent structures. Radical operation entails destruction of important contiguous tissue ensues. If these complications could be obviated by a trial of thyroid hormone with regression of the goiter, the benefit to the patient would be enhanced. However, this observation will need amplification through treatment of a large number of patients in this manner to determine if the response is universal. In addition, surgical biopsy of the thyroid gland will still be required to confirm the diagnosis.

Summary

A 47-year-old man with histologically proven Riedel's thyroiditis was observed to have a recurrence of the disorder nine months after operation. There was no evidence of hypothyroidism but after full replacement doses of thyroid hormone were

given, the thyroid gland promptly returned to normal size. It is suggested that thyroid-suppressive therapy may be effective in Riedel's thyroiditis, as it is in Hashimoto's thyroiditis.

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Regional Enteritis in Siblings

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SINCE CROHN first described regional enteritis, a great deal of speculation has arisen as to the basic cause of the disease. Genetic factors have always been considered, but to date there has been no definite method to prove or disprove such factors. We have recently seen two siblings in whom the diagnosis of regional enteritis was made within a year of each other.

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Submitted August 24, 1964.

Reports of Cases

CASE 1. The patient was a 15-year-old schoolboy who was admitted to hospital on January 10, 1963, with an eight-month history of low-grade diarrhea of three to four loose bowel movements a day, weight loss and weakness. In spite of a voracious appetite, the patient lost 15 pounds in weight. Just before admission he had begun to notice abdominal cramping usually relieved by a diarrheal movement with no blood or mucus in the stool. He had been having low-grade fever without night sweats.

The patient's parents had no history of gastrointestinal disturbances except that the mother had had colonic polyps removed. There was one other sibling, a brother, who is presented as Case 2. The patient had lived all his life in the San Francisco Bay Area.

Results of physical examination, including sigmoidoscopy, were within normal limits. For laboratory examinations see Table 1. Protein bound iodine was 4.8 micrograms per 100 ml.

No abnormalities were seen in x-ray films of the chest. A small bowel series showed multiple skip areas of abnormality involving the lower third of the ileum with abrupt change in the normal mucosal pattern and caliber to considerable narrowing and pronounced irregularity of the mucosal outline. There was extensive involvement of the distal foot of the ileum with persistent polypoid filling defects. These were thought to represent possible granulomatous polyp formation. (See Figure 1.)

Administration of belladonna, salicylazosulfapyridine (Azulfidine®) and high protein, low residue diet was prescribed. In a period of ten days the patient gained approximately five pounds and he was having only one loose, watery bowel movement a day.

The patient continued taking the prescribed drugs for four months. When seen approximately a year later, he was taking no medications but was follow-



Figure 1.—(Case 1)—Barium enema study showing involvement of terminal ileum and skip areas proximally.

ing the diet and his weight had increased to over 125 pounds.

CASE 2. The patient was a 22-year-old electrician's helper who was admitted on January 6, 1964, because of recurrent episodes of alternating constipation and diarrhea (two to four loose, watery bowel movements a day) for two or three years. Diarrhea was accompanied by mild, lower abdominal cramping pain and then would gradually disappear. While serving in the armed forces in Vietnam the patient had had almost continuous diarrhea and had lost approximately 40 pounds in weight. During this time he also had malaria. He had been given various antidiarrheal medications by corpsmen but had never been seen by a physician. He said that he did not have night sweats. When seen before admission to hospital he complained of moderate weakness, easy fatigability and loose, watery bowel movements with occasional bright red blood in the stools.

Results of physical examination, including sigmoidoscopy, were within normal limits. A biopsy of the mucosa of the sigmoid colon showed no abnormalities. Results of laboratory examinations are shown in Table 1.

A roentgen series of the small bowel and a barium enema study showed "ragged" changes along with narrowing of the terminal ileum for a distance of about 7 to 8 centimeters proximal to the cecum. This was shown in both the barium enema and the small bowel series (Figure 2).

The patient was given a course of Azulfidine®, belladonna, multi-vitamin preparations, meprobamate as necessary for nervousness, and a bland, low residue diet. When seen in follow-up over the next two months he was asymptomatic, had discontinued all medication and at the end of that time had gained 5 pounds in weight.

TABLE 1.—Laboratory Examinations During Hospital Admission for Patients in Cases 1 and 2

	Case 1	Case 2
Hemoglobin, gm per 100 ml	11.9	15.6
Hematocrit, per cent	36	49
Leukocytes per cu mL	4,900	6,800
VDRL test for venereal disease	Negative	Negative
Stools for ova and parasites	Negative	Negative
Carotene, micrograms per 100 ml	20	95
Albumin:Globulin ratio	3.8:2.7	4.4:2.7
Purified protein derivative	Negative	Negative
Urinalysis	Normal range	Normal range



Figure 2.—(Case 2)—Barium enema study showing changes in terminal ileum consistent with regional enteritis.

Discussion

Sherlock and coworkers³ reviewed the literature of the familial incidence of regional enteritis and ulcerative colitis as part of a study of a family with two male and two female siblings and one cousin who had regional enteritis, and two cousins who had ulcerative colitis. They listed a reported total of 30 families in which siblings had regional enteritis. In these families there were six sets of twins, four of which were monozygotic and two were dizygotic. The prevalence of ulcerative and regional enteritis in hospital studies of all patients admitted was 0.3 per cent. The chance probability of two siblings having the disease, based on this 0.3 per cent, was 1 to 111,000 or 0.000009 per cent. The

probability that three members of the same family would be affected would be 1 in 37,000,000. Hence Sherlock felt that the genetic factors were more important than environmental factors, but that no conclusion was possible as to the genetic mechanism because of the very small number of cases studied to date.

Crohn and Yarnis¹ reported a total familial incidence of 5 per cent in their large series of cases of regional enteritis. Felson and Wolarsky² found 21 family groupings with a total of 38 cases. In their study, 3.1 per cent of 1,204 patients with regional enteritis or ulcerative colitis were in sibling groupings.

In studying the various family groups in which the disease has been shown to occur, little evidence was found of a simple, single dominant or recessive gene as the most likely method of transmission of the disease.

Summary

Two cases of regional enteritis occurring in siblings within one year of each other have been presented. Statistical data in other reports in the literature indicates a genetic factor is involved in the etiology.

931 West San Bruno Avenue, San Bruno, California (Friedman).

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Editor
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Assistant to the Editor
ROBERT F. EDWARDS

For information on preparation of
manuscript, see advertising page 2

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**California
Medicine**



EDITORIAL

Virology 1965 et al.

VIROLOGY was the theme around which the scientific program of the 94th Annual Session of the California Medical Association was developed. Whether this was a magic word or the meeting just well planned and programed would be difficult to decide. Either way, the meeting was adjudged a huge success.

This year the Scientific Board of the Association began realizing its original dream of being able to plan in advance for the programs of annual sessions to come. The board is likewise beginning to see the advantage of working in conjunction with a number of specialty groups for the development of programs which will attract specialists and simultaneously can be of such widespread scientific implications that it will appeal to the entire CMA membership.

It is not our purpose here to present a diary of activities in the planning of an Annual Session program. It is, however, worthwhile to point out the volume of time, talent and effort required to put together a medical meeting which attracts more than 2,600 physicians. At the same time, it is fitting that the California Medical Association recognize the valuable work performed by some of its members in preparing for this annual galaxie.

It is also fitting that the Scientific Board be applauded for having this year come so close to its dream of broadening the scientific vista of the Association, of ample advance planning and of cooperation with specialty groups in the interests of

presenting a well-rounded program of universal interest.

On the business side of the meeting, functions of the House of Delegates were carried out with a maximum of efficiency and a minimum of waste effort. Meetings of the House of Delegates were scheduled for Saturday evening, when all routine matters were handled, for Tuesday afternoon's elections and for Wednesday's consideration of reference committee reports.

Resolutions presented to the House of Delegates totaled 70, a sharp decrease from the past few years. All were handled by appropriate reference committees and reports of the committees were distributed in ample time for consideration by delegates in advance of their presentation on the floor.

Elections by the House of Delegates elevated Doctor James C. MacLaggan, San Diego, to the office of President-Elect. Ralph C. Teall, Sacramento, succeeded James C. Doyle, Beverly Hills, as President.

To serve as members of the Council, the councilor districts chose Roger Isenhour of San Diego to succeed Doctor MacLaggan; Frank C. Melone, Ontario, to fill a new office created by membership growth in the area, Ralph W. Burnett, Bakersfield, to succeed John F. Murray, Fresno, and James H. Yant, Sacramento, to succeed Dave F. Dozier.

In addition to these Councilor selections the House of Delegates approved a Constitutional amendment which places the immediate past president on the Council for one year and another which gives a vote to the Council representative of the Scientific Board.

Making an early bid to go on to an even greater success than this year's Annual Session, the Scientific Board has chosen "Current Concepts in Therapy: Point and Counterpoint" as the theme for the 1966 meeting and is already at work building a program around it. Particular attention will be given to three divisions within this broad theme—Coronary Artery Disease, Renal Failure, and Gastrointestinal Hemorrhage.



California Medical Association

NOTICES AND REPORTS

Council Meeting Minutes

Tentative Draft: Minutes of the 509th Meeting of the Council, San Francisco, Mark Hopkins Hotel, March 26-31, 1965.

The meeting was called to order by Chairman Anderson in the Mark Hopkins Hotel, San Francisco, on Friday, March 26, 1965, at 4:00 p.m. and thereafter was recessed and reconvened on each of the succeeding days through March 31, 1965.

Roll Call

Present were President Doyle, President-Elect Teall, Speaker Quinn, Vice-Speaker Telford, Secretary Hosmer, Editor Dwight L. Wilbur and Councilors MacLaggan, Wilson, Todd, Gooel, Taw, Bullock, O'Connor, Ham, Rogers, Maguire, Murray, R. S. Wilbur, Miller, Watts, Fenlon, Kay, Kaiser, Anderson, Dozier, Grunigen, Shaw, and, ex-officio, Sherman.

A quorum present and acting.

Present by invitation were Messrs. Hunton, Thomas, Clancy, Collins, Whelan, Klutch, Clark, Downing, Goldman, Moreillon, Blackley and Edwards and Meses. Griffith and Redfern of CMA staff; Messrs. Hassard and Huber, legal counsel; Messrs. Read, Salisbury, Putnam and Brown of the Public Health League of California; county executives Scheuber of Alameda-Contra Costa, Lingerfelt of Fresno, Baker and Field of Los Angeles, Bannister of Orange, Nute of San Diego, Neick of San Francisco, Wood of San Mateo, Donovan and Pearce of Santa Clara, Brown and York of Sonoma, Bruce of Tulare and Whitehall of Stanislaus; Doctor Les-

ter McDonald of the State Department of Social Welfare; Doctor Harold Erickson of the State Department of Public Health; Mr. Robert Garrick, consultant; Doctor Paul Hoagland and Mr. Willis Babb of California Physicians' Service; Mr. John Pompelli of the American Medical Association; Mr. Dick Layton of AMPAC; Doctors Ivan C. Heron, Warren L. Bostick, Francis E. West, Thomas Elmen-dorf and others.

1. Minutes for Approval

On motion duly made and seconded, minutes of the 508th meeting of the Council, held February 27, 1965, were voted approval.

2. Membership

(a) A report of membership as of March 23, 1965, was presented and ordered filed.

(b) On motion duly made and seconded, ten applicants were voted Associate Membership. These were: Frederick M. Hebert, Alameda-Contra Costa County; Alice L. Garrett, Los Angeles County; Louis G. Neft, Fillmore Martin Wilt, Napa County; Ellen Brown, Courtney G. Clegg, Arthur Stone, David Werdegarr, San Francisco County; Francis D. Riggs, San Joaquin County; John M. Boyer, Santa Clara County.

(c) On motion duly made and seconded in each instance, 24 members were voted Retired Membership. These were: Chester M. Vanderburgh, Fresno County; Teresa Lee McNeel, George E. Norwood, Irwin Rubell, Frederick P. Shafer, Los Angeles County; Gilbert Henry Johnson, San Bernardino County; William T. Ahern, Wilma G. Carmody, Louis Q. Dyer, Albert H. Lahman, C. Victor Lindsay, C. Ray Lounsberry, Solomon Malis, Ross Paull, Beryl C. Shearer, Ernest Thelen, Thomas S. White-lock, San Diego County; Francis Scott Smyth, San Francisco County; Frank A. McGuire, Dewey R.

Powell, San Joaquin County; Clifford Jones, Nino E. Tamburello, Santa Barbara County; James McGuire, M. L. Pindell, Siskiyou County.

(d) On motion duly made and seconded, reduction of dues was voted for 19 members for reasons of prolonged illness or postgraduate study.

3. *Business for 1965 House of Delegates*

(a) A proposed Bylaw amendment to delineate the planning function of the Bureau of Research & Planning was submitted and discussed. A substitute amendment was also offered.

ACTION: Both proposed amendments tabled.

(b) Resolutions submitted within less than seven days in advance of the first meeting of the House of Delegates were submitted and discussed, with the following results:

1. Resolution by Edgar Wayburn, San Francisco—re: Consultative services to government.

ACTION: Not approved for introduction into House of Delegates.

2. Resolution by Walter Brignoli, Napa—re: Legislative activities.

ACTION: Not approved for introduction into House of Delegates.

3. Resolution by Alameda-Contra Costa Delegation—re: CPS Payments.

ACTION: Approved for introduction into House of Delegates (Resolution 65-65).

4. Resolution by George Herzog, San Francisco—re: Medical education.

ACTION: Not approved but referred to Reference Committee No. 3B for information only.

5. Resolution by John T. McNally, San Joaquin—re: Voluntary health agencies.

ACTION: Not approved for introduction into House of Delegates.

6. Resolution by the Council—re: California Plan of Medical Assistance for the Aged.

ACTION: Approved for introduction into House of Delegates (Resolution 66-65).

7. Resolution by Malcolm C. Todd, Long Beach—re: Federal legislation.

ACTION: Approved for introduction into House of Delegates (Resolution 67-65).

8. Resolution by Harold Kay, Oakland—re: Disaster Preparedness in California.

ACTION: Approved for introduction into House of Delegates (Resolution 68-65).

9. Resolution by Harold Kay, Oakland—re: Re-definition of Civil Defense.

ACTION: Approved for introduction into House of Delegates (Resolution 69-65).

10. Resolution by John F. Murray, Fresno—re: Federal Legislation.

ACTION: Approved for introduction into House of Delegates (Resolution 70-65).

(c) Report of ad hoc committee on composition of the House of Delegates.

ACTION: Report approved for submittal to House of Delegates.

(d) Resolution No. 44-65, introduced by the Council on the subject of size and format of the Council.

ACTION: Voted that language should be amended to read "committee to study" rather than "committee now studying."

4. *Committee on Committees*

Chairman Teall recommended that the previous Council action approving the naming of two consultants for the Committee on Fees be rescinded and these consultants deleted from the list of nominees to be submitted to the House of Delegates.

ACTION: Voted to rescind earlier action and to delete from the list of committee nominees to be presented to the House of Delegates the names of two consultants to the Committee on Fees.

5. *Bureau of Research & Planning*

Chairman Sherman requested approval of a study by the Bureau of Research & Planning on the incidence and effectiveness of hospital utilization committees, the findings of which would be turned over to the Commission on Hospital Affairs proposed to be formed in a Bylaw amendment before the 1965 House of Delegates.

ACTION: Approved Bureau of Research & Planning study of the incidence and effectiveness of hospital utilization committees, the findings of such study to be delivered to the Commission on Hospital Affairs if such commission is formed.

ACTION: Voted to refer to Commission on Hospital Affairs, if formed, the proposal advanced by Councilor Taw in a letter to President Doyle that criteria for the determination of quality of medical care in hospitals and nursing homes be developed in cooperation with allied organizations.

ACTION: Voted to recommend to Commission on Hospital Affairs, if formed, that it urge all hospital medical staffs that they form and immediately activate hospital utilization committees.

6. *Report of President-Elect*

President-Elect Teall reported on meetings he had attended recently and commented on the apparent acceptance of the philosophy of acceptance of health care of the aged under the Social Security program

by medical students. Doctor Teall addressed a CMA conference of medical students in Los Angeles on March 14.

7. *Commission on Public Agencies*

Chairman MacLaggan reported on a meeting with representatives of the State Department of Social Welfare at which decreases in the department budget recommended by the Legislative Analyst were discussed. The commission recommended that (1) the Association support the continuation of department studies of nursing home rates and the maintenance of personnel needed for this purpose, and (2) that State Government should support with budget funds to meet additional obligations and responsibilities voted by the Legislature.

ACTION: Commission recommendations approved as to (1) nursing home rate studies and (2) maintenance of a balance between obligations and budget allowances.

Doctor MacLaggan reported on the proposed budget reductions of the State Department of Mental Hygiene which would eliminate three Day Treatment Centers and also the Modesto State Hospital. The commission recommended that the Association support the retention of these facilities until adequate alternate facilities to handle the patients involved are developed.

ACTION: Voted to approve commission recommendations to retain three Day Treatment Centers and Modesto State Hospital under the Department of Mental Hygiene.

Doctor MacLaggan further reported on the consideration given to proposed budget reductions affecting the State Department of Public Health and reported the commission's recommendations for support of specified department items.

ACTION: Voted approval of commission recommendations for support of Department of Public Health budget requests for continuation of the bureau of vital statistics, personnel for the Division of Community Health Services, division of dental health, personnel for communicable disease studies in rabies and psittacosis, bureau of hospitals staff, bureau of occupational health, motor vehicle pollution control board and tuberculosis laboratory research and testing.

Doctor MacLaggan also reported receipt of a communication urging support of a Department of Public Health budget item of \$45,000 for retention of a program of prevention of blindness, including case-finding of retrolentil fibroplasia.

ACTION: Voted to support retention of program of blindness prevention program of State Department of Public Health.

8. *Commission on Community Health Services*

Chairman Kay presented the commission's report on a number of items, some informative in character and others requiring Council consideration. The actions listed below were taken:

ACTION: Approved establishment of system of awards for organizations performing outstanding community service in the event of catastrophe or public service of meritorious character.

ACTION: Approved a recommendation that county medical societies offer their services in the health aspects of community programs under the Poverty Program.

ACTION: Voted referral to Commission on Public Agencies for study and report the recommendation that a strong statement in favor of family planning be developed and become Association policy.

ACTION: Voted transmittal to Committee on Legislation the opinion that identification of blood type on drivers' licenses, as proposed in Senate Bill 124, would be a needless duplication of effort.

ACTION: Voted approval for introduction into House of Delegates of two resolutions dealing with the definition of a disaster and the activities of the California Disaster Office.

ACTION: Voted authority for Committee on the Medical Aspects of Sports to act as consultants to the California Interscholastic Federation and to urge that organization to utilize the Relative Value Studies as its basis of fee payments, rather than the Industrial Accident Commission schedule of minimum fees.

ACTION: Voted approval for the Committee on Traffic Safety to act in an advisory capacity to the State Department of Motor Vehicles until such time as a proposed advisory committee to the department director is named.

9. *Health Care of the Aged*

Doctor Watts presented a proposed statement of the attitude of the Association on principles to be observed in the provision of health care of the aged through government.

ACTION: Statement approved and authorized for distribution to the press.

10. *Medical Staff Surveys*

Doctor MacLaggan discussed a letter from Councilor Taw, protesting the requirement that members of hospital staffs of hospitals surveyed under the program of medical staff surveys be required to sign a statement of acceptance of the Guiding Principles for Physician-Hospital Relations before the hospital may receive an approved rating. The letter pointed out that the Guiding Principles were subject to

change and the staff member was already required to subscribe to the hospital staff bylaws, over which he had some measure of control.

ACTION: Voted to refer question to the Commission on Hospital Affairs, if formed.

11. *Report of the President*

President Doyle reported on his activities in recent weeks and, in advance of his conclusion of his term as President, expressed thanks to the officers, Councilors, staff and others who had been of service during his term.

12. *Commission on Professional Welfare*

Doctor Doyle reported on a meeting with medical school deans on the subject of private practice by medical school faculty members. Copies of the minutes of this meeting were ordered prepared for all Council members.

Mr. Hassard gave a status report on the participation in the Association's Keogh retirement plan and stated that amendments have been introduced in the Congress to broaden the plan.

13. *Scientific Board*

Chairman Shaw reported that the Scientific Board had taken under advisement a proposal that funds for the support of medical libraries be extended in size and in the number of libraries given aid and that a decision on this question was expected in about a month. Doctor Bullock moved that funds for the support of the Library of the Los Angeles County Medical Association be continued pending the report of the Scientific Board.

ACTION: Voted to continue support funds for LACMA Library pending report of the Scientific Board and to so recommend to the reference committee of the House of Delegates.

Doctor Shaw also reported that tuberculosis control measures of the State Department of Public Health had been referred to an ad hoc committee under the chairmanship of Sidney J. Shipman, San Francisco.

14. *Ad Hoc Committee on Workmen's Compensation*

Chairman Anderson reported that it is hoped that the Governor's Study Commission on Workmen's Compensation will recommend that a medical advisory committee of seven physicians be established in the Industrial Accident Commission, to select independent medical examiners and provide for their compensation without recourse to the interested parties. Bills now before the Legislature have been reviewed by the committee, which believes all policy positions on such bills have been established.

15. *State Department of Public Health*

Doctor Harold Erickson of the State Department of Public Health reported that the department had submitted to the U.S. Public Health Service a plan for follow-up on draft rejectees. He also reported an increased resistance to the usual tuberculosis drugs in a number of cases by the tubercle bacilli.

16. *State Department of Social Welfare*

Doctor Lester McDonald of the State Department of Social Welfare reported that the number of physicians treating welfare recipients was increasing, that the scope of the program was also increasing and that costs were mounting.

17. *Medical Executives Conference*

It was reported that the Medical Executives Conference had elected Olive Neick, executive secretary of the San Francisco Medical Society, as chairman for the coming year.

18. *Meeting Dates for Coming Year*

Approval was given a proposed list of Council meeting dates for the coming year, showing dates of May 8, June 12, August 7, September 18, October 30 and December 11, 1965, and January 16, February 19 and March 20-23, 1966. It was agreed that the Conference of Component Society Officers would be held on January 15, 1966.

19. *Committee on Legislation*

Chairman Kilroy of the Committee on Legislation presented a legislative bill which would permit a foreign physician not licensed in California to teach and to treat patients in medical schools in California.

ACTION: Voted to favor policy of medical schools' using foreign physicians for teaching purposes so long as they do not practice medicine for fees while not holding a California license.

Mr. Read and Doctor Kilroy also discussed measures to restore supervision and the veto power to local mental health directors under the Short-Doyle program (previously voted to support); to permit county hospitals to employ for as long as 26 months physicians from other states who do not hold California licenses (previously voted to oppose); and to bring about California cooperation with Nevada in a joint commission to study the medical situation at Lake Tahoe.

ACTION: Voted to endorse California's participation in the joint commission on Lake Tahoe medical situation.

A further legislative bill to create two dialysis centers, north and south in California, was held in abeyance pending House of Delegates action on a resolution before it on this subject.

20. *Ad Hoc Committee on Radiation Hazards*

Doctor Charles E. Grayson, chairman of the ad hoc Committee on Radiation Hazards, presented the committee report, which found that the Advisory Council to the program had not met its full potential, that the philosophy of the program should be educational rather than regulatory, that personnel standards should be upgraded and under the direction of a physician, preferably a radiologist, that support of the program should come from general funds rather than licenses or fees and other recommendations.

ACTION: Committee report accepted, committee commended, committee discharged.

21. *Commission on Public Agencies*

Chairman MacLaggan reported on a meeting with officials of the State Department of Employment, which had asked for competitive bids for physical examinations of large groups of employees requiring screening. The commission pointed out to department officials that item #9001 of the Relative Value Studies should form the appropriate basis of fees for this type of examination.

ACTION: Voted to approve the use of item #9001 of the Relative Value Studies as a basis for fees for physical examinations under the Department of Employment program.

22. *State Board of Medical Examiners*

Doctor Donald Abbott, president of the State Board of Medical Examiners, reported on problems of medical discipline which face both the board and the California Medical Association. He expressed thanks for the cooperation the Association has given to date and urged that a firm liaison be maintained.

23. *Committee on Other Professions*

Doctor Wayne Pollock, chairman of the Committee on Other Professions, reported on the status of the unification program with the California Osteopathic Association. His report showed that the program has progressed much more rapidly than had been originally anticipated and that former COA members are being rapidly absorbed into component medical societies throughout the state.

24. *Ad Hoc Committee on Radiology*

On motion duly made and seconded, the report submitted by the ad hoc Committee on Radiology, was lifted from the table.

ACTION: Voted to approve report for implementation.

ACTION: Voted to refer to Committee on Committees the naming of an ad hoc committee to implement recommendations in report. (Committee on

Committees subsequently renamed original committee: Burt L. Davis, Chairman, and Doctors John F. Murray, Albert C. Miller, Wilbur G. Rogers, James Dalton and Joseph P. O'Connor, members.)

25. *Committee on Committees*

Chairman Teall reported that inadvertent drafting of Bylaw amendments had resulted in the proposal that the Committee on Mediation be dissolved, contrary to the wishes of the Committee on Committees. He requested authority to appear before the appropriate reference committee of the House of Delegates to assure the retention of the Committee on Mediation.

ACTION: Authority voted for appearance before Reference Committee No. 4 of the House of Delegates to assure the retention of the Committee on Mediation.

Adjournment

There being no further business to come before it, the meeting was adjourned on Wednesday, March 31, 1965, at 8:50 a.m.

CARL E. ANDERSON, M.D., *Chairman*

MATTHEW N. HOSMER, M.D., *Secretary*

510th Meeting

Tentative Draft: Minutes of the 510th Meeting of the Council, San Francisco, Mark Hopkins Hotel, March 31, 1965.

The meeting was called to order by Chairman Anderson in the Mark Hopkins Hotel, San Francisco, on Wednesday, March 31, 1965, at 3:30 p.m.

Roll Call

Present were President Teall, President-Elect MacLaggan, Speaker Quinn, Vice-Speaker Telford, Editor D. L. Wilbur, Secretary Hosmer and Councilors Wilson, Todd, Goel, Taw, Bullock, Ham, O'Connor, Rogers, Maguire, R. S. Wilbur, Miller, Watts, Fenlon, Kay, Kaiser, Anderson, Grunigen, Shaw, Doyle, Melone, Isenhour, Yant and Burnett.

A quorum present and acting.

Present by invitation were Messrs. Hunton, Thomas and Whelan of CMA staff, Messrs. Hassard and Huber of legal counsel and others.

1. *Election of Officers*

On nominations duly made and seconded, the following were unanimously elected to the positions shown: Chairman, Carl E. Anderson; Vice-Chairman, Albert G. Miller.

2. *Administrative Appointments*

On nominations duly made and seconded, the following were unanimously appointed to the positions shown: Secretary, Matthew N. Hosmer; Executive Secretary, Mr. John Hunton; Editor, Dwight L. Wilbur; Legal Counsel, Peart, Baraty & Hassard.

3. *Committee Appointments*

The chairman, on nominations presented by the Committee on Committees and the Council concurring, made the following committee appointments:

Finance Committee—Councilors Kay, chairman, Todd, Telford, Melone and Isenhour.

CPS Board of Trustees—Councilors Rogers, R. S. Wilbur, Fenlon.

Advisory Committee to Women's Auxiliary—Doctors Ralph C. Teall, James C. MacLaggan, Matthew N. Hosmer, William F. Quinn, George A. Martin.

Committee on Legislation—Doctors Dan O. Kilroy, (chairman), Stuart Knox, Samuel Sherman, John M. Rumsey, Harold E. Wilkins.

Committee on Committees—Councilors MacLaggan (chairman), Teall, Quinn, Telford, Doyle, Rogers, Watts, Wilson, Burnett, Kaiser, O'Connor, R. S. Wilbur, Yant.

Liaison Committee to CPS—Doctors Carl E. Anderson, Gerson Biskind, Clyde L. Boice, Bert S.

Halter, Donald P. Hause, Paul I. Hoagland, Donald D. Lum (chairman), Joseph W. Telford, Edward J. Twigg.

Ad hoc Committee on Kerr-Mills Law—Doctors James C. MacLaggan (chairman), Joseph F. Boyle, Lewis T. Bullock, Joseph P. Cosentino, Arthur F. Howard, Dan O. Kilroy, Samuel R. Sherman, R. S. Wilbur.

Ad hoc Committee on Radiology—Doctors Burt L. Davis (chairman), Albert G. Miller, John F. Murray, Wilbur G. Rogers, James W. Dalton, Joseph P. O'Connor.

Additional representative to *Joint Council to Improve the Health Care of the Aged*—Joseph P. O'Connor.

Representative on *California Interagency Council on Nursing Homes*—Charles E. Schoff, Jr.

4. *Time and Place of Next Meeting*

The chairman announced that the next regular meeting of the Council would be held in Los Angeles on May 8, 1965.

Adjournment

There being no further business to come before it, the meeting was adjourned at 4:00 p.m.

CARL E. ANDERSON, M.D., *Chairman*

MATTHEW N. HOSMER, M.D., *Secretary*

15th ANNUAL regional postgraduate institute

AHWAHNEE HOTEL
Yosemite
May 27-28, 1965

SAN JOAQUIN VALLEY COUNTIES

Presented cooperatively by San Joaquin Valley Counties Medical Societies, University of Southern California School of Medicine and California Medical Association Committee on Continuing Medical Education. A 12½-hour course.

HOST: Fresno County Medical Society.

Regional Chairman: Howard Corbus, M.D., 1300 North Fresno Street, Fresno.

INSTITUTE FEE: \$15.00. For additional information contact Continuing Medical Education office, California Medical Association, 693 Sutter Street, San Francisco 94102. All California Medical Association members and their families are cordially invited to attend.

TWO SYMPOSIA: LIVER DISEASES . . . ENDOCRINOLOGY

This program will emphasize practical aspects of liver disease and endocrinology. While clinical aspects will be stressed, the effort will be made to emphasize the basic principles of clinical features.

THURSDAY, MAY 27

8:15—Registration

Morning Session

- 9:00-9:30—**Adrenal Hypofunction**—Don H. Nelson, M.D.
9:30-10:00—**Differential Diagnosis of Pigmented Urine**—Rudi Schmid, M.D.
10:00-10:30—**Oral Hypoglycemic Agents**—Robert E. Tranquada, M.D.
10:30-10:45—Intermission
10:45-12:15—**CONCURRENT WORKSHOPS** (you may go to one of your choice):
A. **Liver Disease: Differential Diagnosis of Jaundice**—Rudi Schmid, M.D., William P. Mikkelsen, M.D., Robert L. Peters, M.D. and Telfer B. Reynolds, M.D.
B. **Endocrinology: Adrenal Disease**—Don H. Nelson, M.D., John E. Bethune, M.D. and Donald W. Petit, M.D.

Afternoon Session

- 2:00-2:30—**Chronic Hepatitis**—Telfer B. Reynolds, M.D.
2:30-3:00—**Insulin Antagonism in Pregnancy and Obesity**—William H. Daughaday, M.D.
3:00-3:30—**Problems in Gallbladder Disease**—William P. Mikkelsen, M.D.
3:30-3:50—Intermission
3:50-5:00—**CONCURRENT WORKSHOPS** (you may go to one of your choice):
A. **Liver Disease: Liver Biopsy**—Telfer B. Reynolds, M.D. and Robert L. Peters, M.D.
B. **Endocrinology: Therapeutic Problems in Diabetes**—William H. Daughaday, M.D. and Robert E. Tranquada, M.D.

FRIDAY, MAY 28

Morning Session

- 9:00-9:30—**Growth Hormone Secretion in Disease**—William H. Daughaday, M.D.
9:30-10:00—**Alcohol and the Liver**—Rudi Schmid, M.D.
10:00-10:30—**Hypercalcemia**—John E. Bethune, M.D.
10:30-10:45—Intermission
10:45-12:15—**CONCURRENT WORKSHOPS** (you may go to one of your choice):
A. **Liver Disease: The Porphyrrias**—Rudi Schmid, M.D.
B. **Endocrinology: Electrolyte Disturbances Resulting from Endocrine Disease**—John E. Bethune, M.D., Don H. Nelson, M.D. and Robert E. Tranquada, M.D.

Afternoon Session

- 2:00-2:30—**Jaundice in Pregnancy and Its Relationship to Tetracycline**—Robert L. Peters, M.D.
2:30-3:00—**Thyroid Diagnosis—Old and New**—Donald W. Petit, M.D.
3:00-3:30—**Treatment of Ascites**—Telfer B. Reynolds, M.D.
3:30-3:50—Intermission
3:50-5:00—**CONCURRENT WORKSHOPS** (you may go to one of your choice):
A. **Liver Disease: Portal Hypertension**—William P. Mikkelsen, M.D.
B. **Endocrinology: Diagnosis and Therapy of Thyroid Disease**—Donald W. Petit, M.D.

In Memoriam

ARMSTRONG, MARY ISABELLA, Berkeley. Died March 13, 1965, in Piedmont, aged 72. Graduate of the University School of Medicine, Berkeley-San Francisco, 1918. Licensed in California in 1918. Doctor Armstrong was a member of the Alameda-Contra Costa Medical Association.



BAAR, MAX EMIL, North Hollywood. Died April 6, 1965, in Beverly Hills, aged 59, of a coronary. Graduate of the Medical College of Georgia, Augusta, 1938. Licensed in California in 1945. Doctor Baar was a member of the Los Angeles County Medical Association.



BARNA, WILLIAM, San Francisco. Died April 5, 1965, in San Francisco, aged 65. Graduate of Magyar Királyi Pázmány Petrus Tudományegyetem Orvosi Fakultasa, Budapest, Hungary, 1924. Licensed in California in 1946. Doctor Barna was a member of the San Francisco Medical Society.



BAZZANELLA, ROBERT PHILLIP, San Francisco. Died April 1, 1965, in San Francisco, aged 45. Graduate of the University of California School of Medicine, Berkeley-San Francisco, 1944. Licensed in California in 1945. Doctor Bazzanella was a member of the San Francisco Medical Society.



CHAMBERS, STANLEY OWEN, Palm Desert. Died April 6, 1965, in Pasadena, aged 68, of cerebral thrombosis. Graduate of the University of Michigan Medical School, Ann Arbor, 1923. Licensed in California in 1928. Doctor Chambers was a retired member of the Los Angeles County Medical Association and the California Medical Association, and an associate member of the American Medical Association.



CORDES, FREDERICK CARL, San Francisco. Died April 4, 1965, in San Francisco, aged 72, of cancer. Graduate of the University of California School of Medicine, Berkeley-San Francisco, 1918. Licensed in California in 1918. Doctor Cordes was a retired member of the San Francisco Medical Society and the California Medical Association, and an associate member of the American Medical Association.



DOUGHTON, MILLARD MCCLURE, Encino. Died April 13, 1965, in Encino, aged 41, of a coronary. Graduate of Boston University School of Medicine, Massachusetts, 1951. Licensed in California in 1952. Doctor Doughton was a member of the Los Angeles County Medical Association.



DUVALL, HUNTER W., San Francisco. Died March 11, 1965, in San Francisco, aged 65. Graduate of the University of Kansas School of Medicine, Lawrence-Kansas City, 1927. Licensed in California in 1943. Doctor Duvall was a member of the San Francisco Medical Society.



ENEBOE, JOHN BERNARD, San Diego. Died March 14, 1965, aged 59. Graduate of the University of Minnesota Medical School, Minneapolis, 1930. Licensed in California in 1934. Doctor Eneboe was a member of the San Diego County Medical Society.



ESPINOZA, DAVID V., North Hollywood. Died March 14, 1965, in North Hollywood, aged 55, of coronary occlusion. Graduate of Tufts College Medical School, Boston, Massachusetts, 1940. Licensed in California in 1946. Doctor Espinoza was a member of the Los Angeles County Medical Association.

FLAGG, GLENN WILLARD, Los Angeles. Died April 1, 1965, in an airplane crash near Lake Elsinore, aged 38. Graduate of the University of Illinois College of Medicine, Chicago, 1953. Licensed in California in 1957. Doctor Flagg was a member of the Los Angeles County Medical Association.



FRUDENFELD, J. CLOUGH, Inglewood. Died April 6, 1965, in Inglewood, aged 56, of a coronary. Graduate of State University of Iowa College of Medicine, Iowa City, 1933. Licensed in California in 1934. Doctor Frudenberg was a member of the Los Angeles County Medical Association.



GILL, JAMES PFEIFFER, Los Angeles. Died April 1, 1965, in an airplane crash near Lake Elsinore, aged 43. Graduate of the University of Nebraska College of Medicine, Omaha, 1944. Licensed in California in 1952. Doctor Gill was a member of the Los Angeles County Medical Association.



GROGAN, ROBERT E., South Laguna. Died March 27, 1965, in San Clemente, aged 70, of coronary thrombosis. Graduate of Rush Medical College, Chicago, Illinois, 1921. Licensed in California in 1921. Doctor Grogan was a retired member of the Los Angeles County Medical Association and the California Medical Association, and an associate member of the American Medical Association.



MATT, GEORGE J., El Cajon. Died March 20, 1965, in San Diego, aged 57, of cancer. Graduate of the University of Minnesota Medical School, Minneapolis, 1936. Licensed in California in 1947. Doctor Matt was a member of the San Diego County Medical Society.



NELSON, JAMES H., Ojai. Died March 14, 1965, in Ojai, aged 51. Graduate of the University of Southern California School of Medicine, Los Angeles, 1942. Licensed in California in 1942. Doctor Nelson was a member of the Ventura County Medical Society.



PARKER, GARTH, Salinas. Died December 15, 1964, aged 87, of heart disease. Graduate of Cooper Medical College, San Francisco, 1903. Licensed in California in 1903. Doctor Parker was a member of the Monterey County Medical Society.



PETTIGREW, ACE LAWSON, Long Beach. Died April 2, 1965, in Long Beach, aged 60, of cerebral arteriosclerosis. Graduate of the College of Osteopathic Physicians and Surgeons, Los Angeles, 1932. Licensed in California in 1932. M.D. degree from California College of Medicine, 1962. Doctor Pettigrew was a member of the Los Angeles County Medical Association.



SHEETS, MAURICE V., Los Angeles. Died March 13, 1965, in Los Angeles, aged 57, of heart disease. Graduate of Ohio State University College of Medicine, Columbus, 1934. Licensed in California in 1946. Doctor Sheets was a member of the Los Angeles County Medical Association.



WILLITS, EMMA K., San Francisco. Died April 8, 1965, in San Francisco, aged 95. Graduate of Northwestern University Woman's Medical School, Chicago, Illinois, 1896. Licensed in California in 1897. Doctor Willits was a retired member of the San Francisco Medical Society and the California Medical Association, and an associate member of the American Medical Association.

PUBLIC HEALTH REPORT

MALCOLM H. MERRILL, M.D., M.P.H.
Director, State Department of Public Health

DURING RECENT MONTHS, two cases of rat bite fever (Haverhill fever) have been reported to the State Health Department. The disease, also known as erythema arthriticum epidemicum, is caused by *Streptobacillus moniliformis* and is characterized by sudden onset, malaise, headache, fever, adenitis, vomiting, maculopapular eruption usually on the extensor surfaces of the arms and legs and polyarthritides of about two weeks duration.

The disease is usually self-limiting and was initially recognized in connection with an epidemic in Haverhill, Mass., in 1926 which was thought to be transmitted by unpasteurized milk.

The most recent cases were reported from Yuba and Los Angeles counties. Little information is available on the Yuba case, but the Los Angeles case occurred in an 11-year-old boy who was put in hospital following a bite inflicted by a pet rat.

The occurrence of these two cases serves to remind us that sporadic cases of the disease following rat bites and bites by such animals as the weasel and squirrel continue to occur. The number of such cases in California annually is not known since the disease is not a reportable condition.

There were 1,013 reports of occupational disease attributed to pesticides and other agricultural chemicals in 1963, an increase of 22 per cent of the previous year. The increase in the number of reports reflected, in part, an epidemic of parathion poisoning among peach pickers in the San Joaquin Valley.

The rate of occupational disease reports attributed to agricultural chemicals among workers in the agricultural services was over twice the rate for all workers in agriculture.

Since 1951, there have been 27 occupational fatalities in California attributed to these chemicals. During this 13-year period 73 children and 20 other adults died from causes attributed to pesticides and other agricultural chemicals, a total of 120 accidental deaths.

About 32 per cent of the 1,013 reports implicated the organic phosphate pesticides; followed by halo-

genated hydrocarbon pesticides, 7 per cent; herbicides, 6 per cent, and fertilizers, 6 per cent.

Over half of the reports were for skin conditions, followed by systemic poisoning, respiratory conditions and miscellaneous conditions such as gastrointestinal disorders and generalized allergic reactions.

While organic phosphate poisonings accounted for one-third of all reports of occupational disease attributed to agricultural chemicals, they constituted over three-quarters of the 345 reports of systemic poisoning.

Farm labor accounted for 70 per cent of the reports. Nearly half the 710 farm laborers had Spanish surnames. Many of these workers are known to have language difficulties.

Many agricultural chemicals are known to be toxic to man, and careless use can cause minor disability, serious illness and even death. Certain pesticides are now detectable in many food items, in some clothing and in the tissues of man and animals.

Their toxicity and persistence are known to affect biological systems in nature and may affect man in ways not yet understood. Nevertheless, the use of these chemicals is of value to Californians and to the prosperity of their State through the control of communicable diseases such as arthropod-borne viral encephalitides and through the increase and preservation of a wholesome food supply.

Figures for California are not available, but since 1940 the total output of farms in the United States has been rising annually at a rate of about 2 per cent, while U.S. population has been increasing at an annual rate of 1.5 per cent.

In 1963 California farmers harvested 35.4 million tons of crops, 4 per cent above the previous record production of 1962. This record yield was produced on less than 7.9 million acres, 78,000 acres below the acreage harvest of the previous year and the smallest acreage harvested since 1944.

Most of the credit for these spectacular increases in agricultural production is given to agricultural chemicals, primarily fertilizers.

WOMAN'S AUXILIARY

to the California Medical Association



Seek to Serve

THE WOMAN'S AUXILIARY to the California Medical Association is experiencing its Spring renewal: New officers have been installed, and our component county societies are now electing their new leaders for the year ahead.

We are very proud of our outstanding accomplishments this past year, and working together we will continue to strive for perspective and continuity. Organized medicine needs a unified approach to the problems that affect us all, and every physician's wife should be lending her support in Auxiliary work.

We are delighted and proud that the CMA Auxiliary has a membership of 8,665; over one-tenth of all Auxiliary members in the United States are members of our state organization. However, there are many more who should be members, and we are going to put forth greater efforts this coming year to increase our rolls.

The House of Delegates of the American Medical Association unanimously adopted a resolution which urged state and local medical societies to support fully and to aid and encourage the Woman's Auxiliary to the American Medical Association in all its endeavors, particularly in the joint husband-wife membership project. We are delighted that the California Medical Association has endorsed this plan, and are sincerely hoping that this coming year will see many more county medical societies collecting Auxiliary dues from the physician members. With over 23,000 physicians in the California Medical Association, we have a large source of Auxiliary members waiting to be enlisted.

In this regard we might well borrow wisdom by quoting Dr. Albert Schweitzer: "One thing I know: the only ones among you who will be happy are those who will have sought and found how to serve." I believe this is a basic philosophy of our

physicians and their wives, and so I have chosen for a motto for this coming year, "Seek to Serve."

Your wives, Doctors, are much in demand for community leadership. In working for the objectives of the California Medical Association we can give our greatest efforts and our sincerest enthusiasms.

Each one of us is vitally aware that the practice of medicine as we know it is seriously threatened by government interference. Our legislative activities are going to be stressed this year because there is a very real feeling of urgency in regard to these programs. Whatever we can achieve to keep medicine relatively free, we must do with energy and dispatch. One of our first projects has been to organize "Our Day in Legislature," which has been scheduled for May 17. Our Legislation Chairman, Mrs. Daniel W. Abels, has been working with Dr. Ralph C. Teall, President of CMA, on a plan to bring all of the legislation chairmen of the county auxiliaries to Sacramento on this day, where they will observe legislative sessions. They will also be given a short course in how to function most effectively for political influence.

Each of us welcomes a challenge; we find our energy and strength increases in proportion to the demands made upon us. A Biblical quotation that often returns to my mind is, "As thy days, so shall thy strength be." The demanding, challenging days filled with service for others and a cause we believe in, will find us with unexpected strength and energy to accomplish great things.

We Americans are guaranteed in our Constitution the right to pursue happiness, yet most of us realize that happiness is a by-product; as Dr. Schweitzer said, "The only ones among you who will be happy are those who have sought and found how to serve." Your wives, members of the Woman's Auxiliary to the CMA, have pledged that this coming year they will "Seek to Serve" in assisting the California Medical Association in its program for the advancement of medicine and public health.

MRS. GEORGE J. BOWER, *President*

Sponsors of the conference are Western Industrial Medical Association, Western Association of Industrial Nurses, American Industrial Hygiene Association, American Society of Safety Engineers, American Conference of Governmental Industrial Hygienists and the Health Physics Society. Further information may be obtained from Dr. A. Christine Einert, secretary, 629 Euclid Avenue, Berkeley, California 94708.

NEWS & NOTES

NATIONAL • STATE • COUNTY

GENERAL

A state-wide clearing house to avoid duplication of educational programs scheduled for California physicians is being established by the California Medical Association Committee on Continuing Medical Education.

A letter inviting all county societies, medical schools voluntary health agencies, specialty societies and allied health groups to participate has received enthusiastic response, George C. Griffith, chairman of the committee said.

The central information file will enable any organization to check dates, topics and locations of future meetings and courses within minutes.

Programs listed with the CMA will be published each month for six months in advance of the meeting in CALIFORNIA MEDICINE. They also will be listed in *Medical Dates Bulletin*, which will be published bi-monthly beginning in August, and will be sent to all organizations participating in the clearing house.

It is hoped that meetings will be planned and on file three years in advance, said Dr. Griffith. By scheduling this far ahead, duplications of subject and dates can be avoided.

A simple check of the cross-filing system will reveal any area of postgraduate education in which too few courses are being offered and will show up areas of medicine in which there is a heavy concentration of courses, thus making it easier to provide a well balanced program of postgraduate courses for California physicians.

LOS ANGELES

Dr. Judson S. Denson, professor and chairman of the Anesthesiology Section, University of Southern California (USC) School of Medicine Department of Surgery, has been elected president of the California Society of Anesthesiologists for 1965-66.

SAN FRANCISCO

The San Francisco headquarters of CPS-Blue Shield has been moved to its new location at 720 California Street. In the building purchased from Hartford Insurance Company, CPS will now be able to pull together the various departments of the company currently occupying three separate locations in San Francisco, according to E. R. Paolini, executive vice-president and chief executive officer. Although the usual temporary difficulties associated with such a move are anticipated, the new single location should soon increase efficiency of the Blue Shield operation and enhance the ability of CPS to serve both the public and the profession, Mr. Paolini said.

* * *

The ninth annual Western Industrial Health Conference will be held October 8 and 9, 1965 at the San Francisco Hilton Hotel, San Francisco, California.

GENERAL

The fifteenth annual meeting of the California Society of Plastic Surgeons was held at the Del Monte Lodge, Pebble Beach, California, on April 22, 23 and 24.

Elected to office were Dr. Allyn J. McDowell, of North Hollywood, president; Dr. Charles F. Streiss, of San Francisco, president-elect; Dr. Sanford Dietrich, of Santa Barbara, vice-president; and Dr. William J. Morris, of San Francisco, Secretary-treasurer.

AMERF GIFTS

California medical schools received \$215,669 in unrestricted gifts from the American Medical Education and Research Foundation during 1964.

The California Medical Association contributed \$198,705, earmarked for California schools, to the foundation. Of that amount, 80 per cent was allocated to the four primarily non-tax supported medical schools in the state—California College of Medicine, Loma Linda University, Stanford University and the University of Southern California.

The allocations were as follows:

California College of Medicine.....	\$95,367
Loma Linda University.....	40,772
University of Southern California.....	35,208
Stanford University	33,519
University of California.....	6,333
University of California (Los Angeles)	4,467

* * *

Student Loans

More medical students in California than in any other state took advantage of the American Medical Association Education and Research Foundation Loan Guarantee Program in 1964.

The Californians received 779 loans totaling \$976,350. Since the beginning of the program in 1962, more than 2,000 loans, approximately 10 per cent of the total number, have gone to California students, interns and residents.

The AMA-ERF loans are available to medical trainees at approved institutions. The loans, which are made by banks, are secured by the ERF guarantee fund which must be maintained at a level of at least 8 per cent of the total outstanding loans. A trainee can borrow a maximum of \$1,500 a year, and up to \$10,000 over a seven-year period. Fewer than 5 per cent of the applicants to date have been turned down.

Physicians, as individuals, contributed more than a quarter of a million dollars to launch the program in March, 1962. Since then, 19,298 loans totaling more than \$22 million have been approved, and more than a million dollars of the total amount borrowed had been repaid by December 31, 1964.

EDUCATION NOTICES

Meetings and Courses

COMMITTEE ON CONTINUING MEDICAL EDUCATION

THIS BULLETIN of the dates of continuing education programs and the meetings of various medical organizations in California is supplied by the Committee on Continuing Medical Education of the California Medical Association. In order that they may be listed here, please send communications relating to your future meetings or postgraduate courses to Committee on Continuing Medical Education, California Medical Association, 693 Sutter Street, San Francisco, California 94102.

KEY TO ABBREVIATIONS AND SYMBOLS

Medical Centers and CMA Contacts for Postgraduate Course Information

CMA:	California Medical Association For information regarding Postgraduate Institutes and Circuit Courses, Contact: Continuing Medical Education, California Medical Association, 693 Sutter Street, San Francisco 94102. PROspect 6-9400, Ext. 68.
LLU:	Loma Linda University For information on courses contact: W. F. Norwood, Ph.D., Assistant Dean and Chairman, Division of Continuing Education, Loma Linda University School of Medicine, 1720 Brooklyn Ave., Los Angeles, California 90033, ANgeles 9-7241, Ext. 214.
PRES.	Presbyterian Medical Center
MED. CTR.	For information on courses contact: Arthur Selzer, M.D., chairman, Education Committee, Presbyterian Medical Center, Clay and Webster Streets, San Francisco 94115, WEst 1-8000.
UCLA:	University of California at Los Angeles For information on courses for physicians or ancillary personnel contact: Thomas H. Sternberg, M.D., Assistant Dean and Head, Continuing Education, U.C.L.A. Medical Center, Los Angeles, 90024, 478-9711, Ext. 2114.
UCSF:	University of California, San Francisco For information on courses for physicians or ancillary personnel contact: Seymour M. Farber, M.D., Dean, Educational Services and Director, Continuing Education, University of California Medical Center, Room 565-U, San Francisco 94122, 666-1692.
USC:	University of Southern California For information on courses contact: Phil R. Manning, M.D., Associate Dean, Postgraduate Division, USC School of Medicine, 2025 Zonal Ave., Los Angeles 90033, CApital 5-1511, Ext. 300.
STAN:	Stanford University For information on courses for physicians or ancillary personnel contact: Roy Cohn, M.D., Associate Dean for Graduate Affairs, Stanford University School of Medicine, 300 Pasteur Drive, Palo Alto, DAvenport 1-1200.

*Fee to be announced.

†Hours to be announced.

MAY

May 19—**Memorial Hospital of Long Beach Medical Staff Annual Symposium.** Memorial Hospital, 2801 Atlantic Avenue, Long Beach, Wednesday. Contact: George X. Trimble, M.D., secretary, Symposium Committee, Memorial Hospital, Long Beach.

May 19-21—**Highlights of Modern Ophthalmology.** Pres. Med. Ctr. Wednesday-Friday. \$75. Contact: Secretary of the Lions Eye Bank, Pres. Med. Ctr., 2018 Webster Street, San Francisco.

May 20—**San Francisco Society of Internal Medicine Annual Meeting.** San Francisco Golf Club, Thursday. Contact: Charles Barnett, M.D., secretary, 384 Post Street, San Francisco.

May 20-21—**General Surgery.** Thursday-Friday. UCSF. 12½ hours. \$50.

May 21-23—**Laboratory Diagnosis.** Friday-Sunday. 18 hours. UCLA.*

May 26—**Los Angeles County Heart Association Annual Meeting.** Statler Hilton Hotel, Golden State Room, Los Angeles, Wednesday, noon. Contact: Chauncey A. Alexander, executive director, Los Angeles County Heart Association, 2405 West 8th Street, Los Angeles 90057.

May 27-28—**SAN JOAQUIN COUNTIES—Regional Postgraduate Institute presented by California Medical Association** in cooperation with USC School of Medicine, Ahwahnee Hotel, Yosemite. Chairman: Howard Corbus, M.D., 1300 North Fresno, Fresno.

May 27-June 17 — **Neuropsychiatric Management in Daily Practice.** UCSF in Modesto, Thursday evenings. 8 hours. \$7.

May 29-June 30—**Fourth Annual Medical Centers of Europe.** \$250. USC.

May 31-June 11—**Prosthetics-Orthotics.** Monday-Friday. 90 hours. \$200. UCLA.

JUNE

June 10-11—**Nevada Academy of General Practice Annual Scientific Meeting.** Faculty of USC School of Medicine. Symposium on Gastroenterology. Golden Hotel, Reno, Nevada. Thursday-Friday. Contact: Robert V. Broadbent, M.D., 601 Mill Street, Reno, Nevada.

June 16-19—**California Society of Anesthesiologists Biennial Meeting.** Sahara-Tahoe, Las Vegas, Nevada. Wednesday-Saturday. Contact: Lewis H. Lambert, M.D., chairman, 3001 Laurel Drive, Sacramento 25.

June 23-25—**Childrens Hospital Sixth Annual Pediatric Seminar.** Town and Country Hotel, San Diego. Wednesday-Friday. \$25. Contact: Richard L. Johnston, administrator, Childrens Hospital, 8001 Frost Street, San Diego 11.

June 23-25—**Treatment of Fractures.** USC at Los Angeles County Hospital. Wednesday-Friday. 22 hours. \$80.

June 24-26—**SACRAMENTO VALLEY COUNTIES—Regional Postgraduate Institute presented by California Medical Association** in cooperation with UCLA School of Medicine. Harvey's Resort Hotel, Lake Tahoe. Co-Chairmen: Dixon L. Hughes, M.D., 3320 White Oak Court, Sacramento; Philip J. Reilly, M.D., 6437 Fair Oaks Boulevard, Carmichael.

June 25-27—**Western Conference of Foundations for Medical Care.** Hotel del Coronado, San Diego. Friday-Sunday. Contact: Milo A. Youel, M.D., chairman, San Diego County Medical Society, 3427 Fourth Avenue, San Diego 92103.

JULY

July 15-16—**NORTH COAST COUNTIES—Regional Postgraduate Institute presented by California Med-**

ical Association in cooperation with Loma Linda University School of Medicine, Eureka Inn, Eureka, Chairman: J. Roy Wittwer, M.D., 716 Harris Street, Eureka.

July 29-30—**Recent Trends in Strabismus Management and Treatment.** For physicians in Ophthalmology or EENT only. Thursday-Friday. \$60. Pres. Med. Ctr.

AUGUST

August 30-September 2—**American Hospital Association.** San Francisco. Monday-Thursday. Contact: Edwin L. Crosby, M.D., director, 840 North Lake Shore Drive, Chicago 11, Illinois.

SEPTEMBER

September 9-11 — **Saint John's Hospital Annual Postgraduate Assembly.** Thursday-Saturday. Contact: John C. Eagan, M.D., director, 1328 Twenty-second Street, Santa Monica.

OCTOBER

October 8-9—**Western Industrial Medical Association.** Hilton Hotel, San Francisco. Friday-Saturday. Contact: Christine Einert, M.D., 629 Euclid Avenue, Berkeley 94708.

October 12—**Northeastern California Rheumatoid Foundation Seminar: Medical and Surgical Aspects of Arthritis.** Mercy Hospital, Sacramento. Tuesday. Contact: Harold B. Strauch, M.D., 4101 J Street, Sacramento.

October 22-24—**California Society of Internal Medicine Annual Meeting.** Hotel del Coronado, Coronado. Friday-Sunday. Contact: Nancy V. Louw, executive secretary, California Society of Internal Medicine, 350 Post Street, San Francisco 94108.

October 24-27—**California Academy of General Practice Annual Scientific Assembly.** Statler Hotel, Los Angeles. Sunday-Wednesday. 13 hours. Contact: Mr. William W. Rogers, executive secretary, California Academy of General Practice, 9 First Street, Room 900, San Francisco.

November

November 10—**The Southern California Annual Science Lecture of The American College of Physicians.** Statler Hilton Hotel, Los Angeles. Wednesday, 6:30 p.m. Contact: W. Philip Corr, M.D., Governor for Southern California, The American College of Physicians, 3660 Arlington Avenue, Riverside 92506.

November 11-13—**Gerontological Society.** Ambassador Hotel, Los Angeles. Thursday-Saturday. Contact: Mrs. Marjorie Adler, MA, Gerontological Society, 661 S. Euclid, St. Louis 63110.

Courses Offered Continuously or by Arrangement

LLU:

As Arranged—**Traineeships** in clinical and other departments are available by arrangement with department chairmen of the Postgraduate Division. 80 hours minimum.

Anesthesia, 6 months. 250-300 hours. \$350.

Pulmonary Diseases—can be arranged.

UCSF:

Continuously—Courses presented by special arrangement:

Anesthesia (Full time for one to three weeks or part time by arrangement).

Dermatology (Full time or part time by arrangement).

Principles and Clinical Uses of Radioisotopes (Full time, one to three months).

USC:

Continuously—**Basic Home Course in Electrocardiography.** One year postgraduate series, ECG interpretation by mail. Fifty-two issues \$100. Physicians may register at any time.

Advanced Home Course in Electrocardiography. One year postgraduate series, ECG interpretation by mail. Fifty-two issues \$85. Physicians may register at any time.

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Audio-Digest Foundation (a non-profit subsidiary of the California Medical Association) provides by subscription twice-a-month tape-recorded summaries of leading national meetings and authoritative surveys of current literature. Seven separate services in: General Practice, Surgery, Internal Medicine, Obstetrics-Gynecology, Pediatrics, Anesthesiology, and Ophthalmology. A new Catalog of outstanding lectures and panel discussions in all areas of medical practice is also available. For information, write: Mr. Claron L. Oakley, Editor, 619 South Westlake Avenue, Los Angeles.

TO HAVE YOUR MEETING OR PROGRAM LISTED IN CALIFORNIA MEDICINE

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(COPY MUST BE RECEIVED NOT LATER THAN THE FIFTH OF THE MONTH PRECEDING ISSUE)

Continuing Medical Education, California Medical Association

693 Sutter Street, San Francisco, California 94102

NAME OF ORGANIZATION_____

MEETING OR PROGRAM_____

DATE_____TIME_____

PLACE_____FEE, IF ANY_____

CONTACT FOR INFORMATION:_____
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Loan Program for Medical Students

One of every six American medical students, interns and residents is being assisted by a loan-guarantee program started three years ago by the American Medical Association.

More than 19,000 loans totaling more than \$27,600,000 have been guaranteed under the program by the AMA's Education and Research Foundation through a cooperative program with three banks.

Medical students may borrow up to \$10,000 over seven years, with up to 10 years to repay. They may borrow \$400 to \$1,500 annually.

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The Foundation has raised \$2,472,000 as a guarantee fund for the loans. Each dollar guarantees \$12.50 in bank loans, thus providing a credit potential of more than \$30 million.

Loans are being made at the rate of 600 a month. Over 90 per cent of the total loan potential and accruable interest had been committed by the end of 1964.

Contributions still are needed to keep the program on sound financial footing, said Foundation President Raymond M. McKeown, M.D., of Coos Bay, Ore.

It's expected the program will be self-sustaining in four to five years, he said. New loans then will be offset by repayments. Borrowers already have repaid 384 loans, and are repaying another 2,167.

Medical students, interns and residents are eligible to participate if they are U.S. citizens and are enrolled and in good standing in full-time training at an approved American medical school or hospital internship or residency program.

AMA International Field Representative Named

A multi-lingual surgeon became the American Medical Association's first field representative.

He is Virgil T. (Jack) DeVault, M.D., former associate secretary-general of the International College of Surgeons.

Dr. DeVault will spend much of his time with members of the medical profession in other countries. He will discuss patient care and other matters of professional interest with members of organized medical groups, and will arrange AMA assistance when it is practicable, needed and wanted.

Born in 1901 in White County, Ind., Dr. DeVault earned an M.D. degree in 1929 at the School of Medicine of Indiana University. He earned another M.D. degree from San Marcos University, Lima, Peru, after taking the medical examination in Spanish in 1934.

After an internship at Gorgas Hospital in the Panama Canal Zone, he served as chief medical officer for the Anglo-Ecuadorian Oil Co., Ltd., Salinas, Ecuador.

There followed service as a resident surgeon in Baltimore, as chief surgeon of the Williston Clinic, Williston, N.D., and as chief surgeon and director of the Lobitos Oilfields, Ltd., Lobitos, Peru.

In 1935-36, Dr. DeVault did postgraduate work in surgery in Rome, Heidelberg, Munich, Vienna and Edinburgh.

After serving as chief surgeon and director of the Anglo-American Hospital and Clinic in Lima, Peru, until 1950, he became medical director of the Foreign Service and Department of State in Washington, and was commissioned a U.S. Public Health Service officer, director grade.

Rate of Aging in Women May Be Decreasing

It appears that nature, without artificial assistance, has contrived to bless womanhood with a longer period of "endocrinologic youth," according to an editorial in the January 11 *Journal of the American Medical Association*.

The editorial referred to a recent report that, in the decade before 1961, the median age of menopause of women in Great Britain was 50.1 years.

This represents an increase of about four years in the age of menopause compared with that of a century ago, the editorial said, and this trend has occurred in most European countries since the last century.

"Analysis of early literature suggests that approximately 40 years was the mean age of menopause in ancient times, and approximately 45 years between 1500 and 1800," the editorial continued.

"These findings are particularly significant in view of the fact that today adolescence occurs at a much earlier age than in the last century.

"This combination of an earlier age of menarche . . . and a later age of menopause provides material for cheerful speculation. It is possible that these changes connote a decreased rate of 'physiological degeneration,' that is, a decreased rate of aging in women in recent decades."

There is no certain explanation for these changes, although better nutrition and improved environmental conditions may play important roles, the editorial added.

Statement on Intrauterine Contraceptives

The use of plastic intrauterine contraceptive devices (IUCD) is "generally recognized as an inexpensive and effective method of birth control," said a statement adopted by the American Medical Association's Committee on Maternal and Child Care.

The Committee commented that, "The increasing demand by the public for a simple, inexpensive and effective method for birth control requires that medicine accept a major responsibility in this area," and that, "in discharging this responsibility, the physician must be prepared to provide services and counsel according to the needs of his patients and at a reasonable cost."

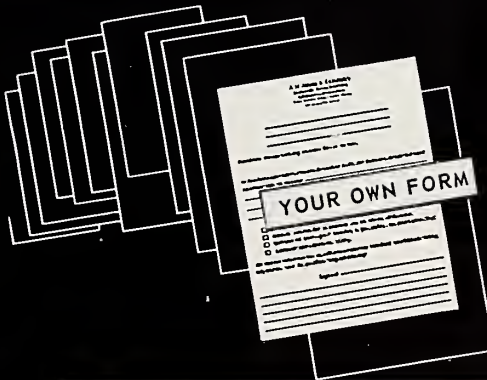
It said it would not recommend specific charges for insertion and supervision because such matters are best determined at the local level. However, it noted that, "Since the initial cost of insertion instruments and IUCD coils is relatively small and the medical procedure is comparatively simple . . . the charges should be commensurate with the relative simplicity of this service."

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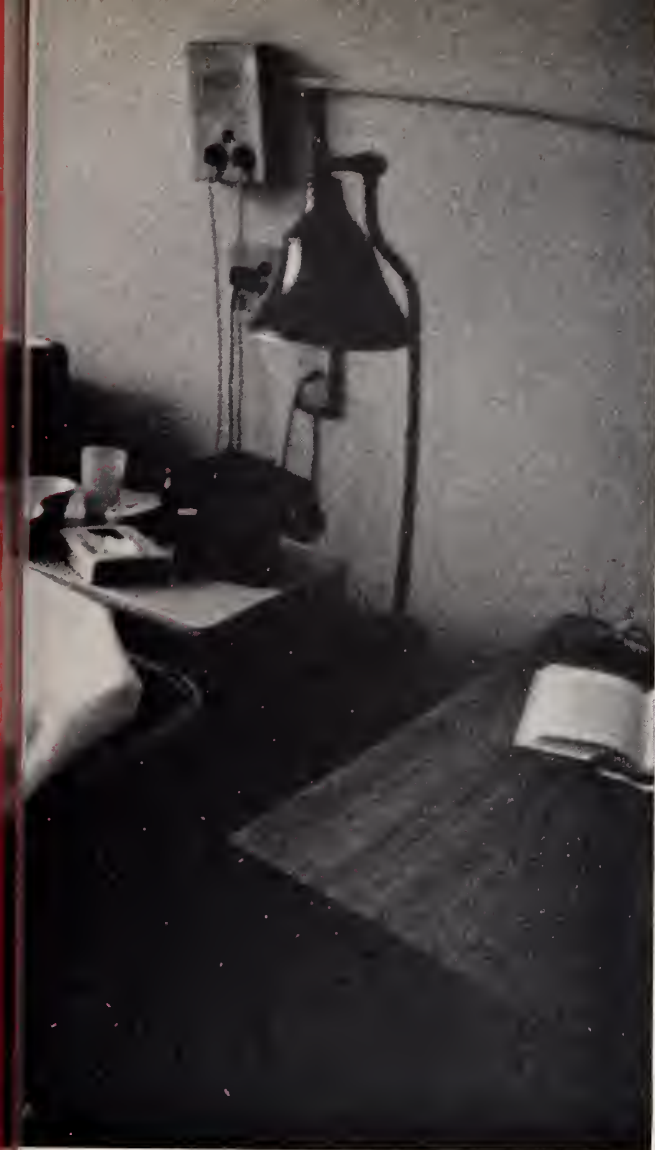
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Skin Cancer May Be Inherited

Susceptibility may be inherited for cancer arising in moles or dark spots on the skin, a study suggests in the April 12 *Journal of the American Medical Association*.

An incidence of malignant melanoma, a form of skin cancer, that was far higher than ordinarily probable was found among the families of 15 patients with this disease. The 15 were among 250 cases selected for review.

Medical examinations of melanoma victims' relatives may lead to earlier detection of this cancer, the report said.

The study is by Roger W. Turkington, M.D., of the Departments of Medicine of Duke Hospital and Durham Veterans Administration Hospital, Durham, N.C. It supplements earlier research on inheritance of skin cancer susceptibility.

There is indisputable evidence, the report said, for succeeding generations to have nevi, or darkly pigmented spots on the skin. The majority of these dark masses are harmless.

However, "since many investigators believe that virtually all melanomas arise from nevi, the inheritance of large numbers of nevi might predispose certain families to a greater risk of melanoma" the report said.

There was no consistent relationship between sexes of the affected person in each family and no consistent location of the tumors on the skin, the report said.

Malignant melanoma ordinarily occurs relatively late in life, the report said, but in the cases reported, there was a tendency for the disease to appear earlier in succeeding generations.

Five of the 15 patients studied were from families with three or more cases of melanoma in recent generations. The probability of this is very small unless inheritance factors are considered.

To supplement this preliminary evidence, much more study of family histories and cancer inheritance factors is needed, the report said.

The chief value of studying family histories for cancer incidence, the report said, is to alert physicians to the possibility of malignant melanoma in relatives.

"Only by earlier detection can the mortality from this malignancy be reduced at present," the report said.

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Side effects and precautions: The transitory drowsiness which may occur with hydroxyzine HCl usually disappears spontaneously in a few days with continued therapy, or is correctable by dosage reduction. Dryness of the mouth may be seen with higher doses. Involuntary motor activity has been reported in some hospitalized patients on higher than recommended dosage. Hydroxyzine HCl may potentiate CNS depressants, narcotics such as meperidine, barbiturates, and anticoagulants. In conjunctive use, dosage for these drugs should be decreased. Because drowsiness may occur, patients should be cautioned against driving a car or operating dangerous machinery. **Parenteral Solution Precautions and contraindications:** This dosage form is intended only for I.M. or I.V. administration and should not, under any circumstances, be injected subcutaneously or intra-arterially. When the usual precautions for I.M. injection have been followed, reports of soft tissue reactions have been rare. I.V. administration should be slow, no faster than 25 mg. per minute, and should not exceed 100 mg. in any single dose. Particular care should be used to insure injection only into intact veins; a few instances of digital gangrene occurring distal to the injection site have been attributed to inadvertent intra-arterial injection or periaxillary extravasation, both of which should be avoided. **More detailed professional information available on request.**

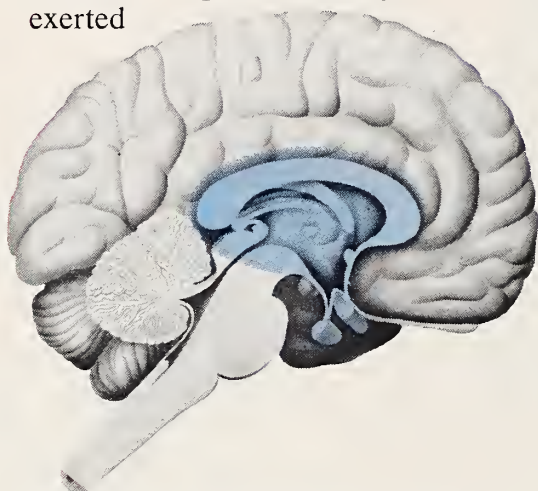
References: 1) Hayward-Butt, J. T.: *Rocky Mountain M. J.* 61:39 (Dec.) 1964. 2) Grody, R. W., and Rich, A. L.: *South. M. J.* 54:766 (July) 1961. 3) Steinberg, M., and Halz, W. G.: *New York J. Med.* 60:691 (March) 1960. 4) Javan, F.: *Santé publique* 13:161 (July 5) 1958. 5) Bizzari, D., et al.: *New York J. Med.* 63:529 (Feb. 15) 1963.

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Shaded area is the limbic system—the primitive “animal brain,” presumed center for the functions of feeling and emotion.

In vertebrate evolution, a pattern of accretion may be observed in which early nerve structures were retained and elaborated in the brain of lower mammals.¹ This lower mammalian brain survives in man as the seat of emotional behavior. It is on this *subcortical* center that the calming action of Vistaril appears to be primarily exerted.²⁻⁷

Where the tranquilizing action of Vistaril has no significant effect

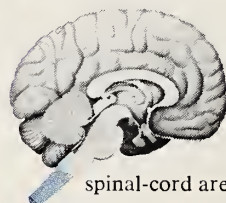
The excessive action sometimes seen on these areas with certain drugs may adversely affect mental acuity and certain motor and sensory activity.



cerebral cortex



thalamic area



spinal-cord area

1. MacLean, P. D.: J. Nerv. Ment. Dis. 135:289, Oct., 1962. 2. Bozza, M. L. and Nicola, G. C., in Garattini, S. and Ghetti, V.: Psychotropic Drugs, Elsevier Publishing Co., Amsterdam, 1957, p. 569. 3. Payne, A. B., Claassen, L. G. and Hamelberg, W.: Ohio Med. J. 58:915, Aug., 1962. 4. Savona, B. and Perricone, G.: Minerva Ginec. 10:317, Apr. 30, 1958. 5. Settel, E.: Amer. Pract. 8:1584, Oct., 1957. 6. Steinberg, N. and Holz, W. G.: New York J. Med. 60:691, Mar. 1, 1960. 7. Weyne, F. and Roussel, J. L.: Bruxelles Med. 37:1959, Dec. 22, 1957.

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Vistaril[®] hydroxyzine

Dosage recommendations: Oral

Vistaril (hydroxyzine pamoate)

For Adults—200 to 400 mg. daily in divided doses, then adjust to individual patient requirements.

For Children under 6 years of age—50 mg. daily in divided doses, then adjust to individual patient requirements.

For Children over 6 years of age—50 to 100 mg. daily in divided doses, then adjust to individual patient requirements.

Dosage recommendations: Parenteral

Vistaril (hydroxyzine HCl)

For Adults—I.M., 50 to 100 mg. Stat. and q. 4-6 h., p.r.n.

For Children—I.M., 0.5 mg. per pound of body weight.

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Capsules: 25 mg., 50 mg., 100 mg.

Vistaril (hydroxyzine pamoate)

Oral Suspension: 25 mg. per 5 cc.

Vistaril (hydroxyzine HCl)

Parenteral Solution:

25 mg. and 50 mg. per cc.



Contraindications: Hydroxyzine pamoate is contraindicated for patients who have shown a previous hypersensitivity to it. Hydroxyzine parenteral solution is intended only for intramuscular or intravenous administration and should not, under any circumstances, be injected subcutaneously or intrarterially.

Precautions: Hydroxyzine may potentiate the action of central nervous system depressants, narcotics such as meperidine, and barbiturates. In conjunctive use, dosage for these drugs should be decreased. Because drowsiness may occur, patients should be cautioned against driving a car or operating dangerous machinery. The usual precautions for intramuscular injection should be followed; soft-tissue reactions have rarely been reported when proper technique has been used. On intravenous injection a few instances of digital gangrene have occurred distal to the injection site considered to be due to inadvertent intra-arterial injection or peri-arterial extravasation. Therefore, particular caution should be observed when hydroxyzine parenteral solution is administered intravenously to insure injection only into intact veins; avoid either intra-arterial injection or extravasation. Intravenous administration should be accomplished slowly, no faster than 25 mg. per minute, and not to exceed 100 mg. in any single dose.

Adverse Reactions: Drowsiness may occur which is usually transitory, disappearing spontaneously in a few days with continued therapy or correctable by dosage reduction. Dryness of the mouth may be seen with higher doses. Involuntary motor activity has been reported in some hospitalized patients on higher than recommended dosage.

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Hospitals Get 28 Cents of Health Dollar

Hospitals received the largest share of every health dollar spent by Americans in 1963, according to Department of Commerce figures on personal expenditures.

Twenty-eight cents of every health dollar went to hospitals, 25 cents went to doctors, 18 cents was spent on drugs, 10 cents was paid to dentists, 8 cents went for health care, 6 cents went for the purchase of appliances, and 5 cents was spent on all other services.

The doctors' share of payments for health care was up one per cent from 1962, but was down one per cent from the share received 10 years earlier.

An analysis of the 1963 statistics by the American Medical Association's Department of Medical Economics shows the nation's consumers spent \$23.6 billion for health care in 1963, including \$6.6 billion for hospital charges, \$4.3 billion for drugs, and \$5.9 billion for physicians' services.

Americans spent a total of \$375 billion for their personal needs in 1963. About 6.3 per cent of this went for health care.

Other consumer expenditures in 1963 included food, \$76 billion (20.3 per cent of the total); clothing, accessories and jewelry, \$37.1 billion (9.9 per cent); housing, \$43.9 billion (13 per cent); household operation, \$52.4 billion (14 per cent); transportation, \$47.2 billion (12.6 per cent); recreation, \$22.7 billion (6 per cent); private education and research, \$5.7 billion (1.5 per cent).

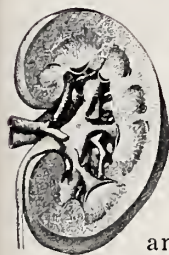
Tobacco, \$8.1 billion (2.2 per cent); liquor, \$11 billion (3 per cent); foreign travel and remittances, \$3.5 billion (0.9 per cent); religious and welfare activities, \$5.4 billion (1.4 per cent); personal business, \$24.9 billion (6.6 per cent); personal care, \$6.5 billion (1.7 per cent); and all other, \$1.8 billion (0.5 per cent).

Of the total personal consumption expenditures in 1963, \$167.5 billion was spent on nondurable commodities, \$52 billion was spent for durable commodities, and \$155.3 billion was spent for services, including the \$5.9 billion paid for physicians' services.

SKIN HYGIENE AND DERMATITIS IN INDUSTRY—D. J. Birmingham (1014 Broadway, Cincinnati). Arch. Environ. Health, 10:653 (April) 1965.

There are several time-tested methods to control occupational dermatoses. Among them is systemic and cutaneous toxicity evaluation of new chemicals at the raw material development level, and then imparting this information to the handlers and users of the new systems. Appropriate engineering installations can control chemical dusts, fumes, and vapors in the work environment. Personal hygiene methods which entail education of the workmen concerning the health hazards, the use of good skin cleansers, protective clothing, and protective ointments where needed are also important. The greatest inroads can be made by educating the workmen in personal hygiene.

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Tetracycline
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Penicillin G
against *Proteus mirabilis* and *E. coli*



Proteus mirabilis is not only the most common cause of *Proteus* infections of the urinary tract, but such infections are often resistant to other antibiotics.¹⁻⁴ According to Anderson *et al.*,⁵ "When assessed in terms of serum levels attainable with usual dosage regimens, ampicillin was the most effective drug tested against *E. coli* and *P. mirabilis*." These

authors found *Klebsiella-Aerobacter* and *Pseudomonas* organisms relatively insusceptible to ampicillin. With its broad-spectrum coverage of many gram-positive and gram-negative bacteria, absence of toxicity, and slow emergence of resistant strains, PENBRITIN (ampicillin) is a most beneficial and safe drug in treating urinary tract infections—killing the pathogens, not just suppressing them.

Dosage: Adults—500 mg. every six hours (higher doses may be required for severe infections). Children—(under 13 years, whose weight will not result in a dosage higher than that recommended for adults). 100 mg./Kg./day in

divided doses every six or eight hours for moderately severe infections; 200 mg./Kg./day in divided doses every six hours for severe infections.

Contraindications: (1) Hypersensitivity to penicillin. (2) Infections by penicillinase-producing staphylococci and other penicillinase-producing organisms. *Aerobacter aerogenes*, *Pseudomonas pyocyanea*, and *Proteus morganii* are resistant to PENBRITIN (ampicillin).

Side Effects: Mild effects, such as skin rashes, diarrhea, nausea and vomiting, have occasionally appeared.

Precautions: As with other antibiotics, precautions should be taken against gastrointestinal superinfection. To date, safety for use in pregnancy has not been established.

Supplied: No. 606—Each capsule contains 250 mg. of ampicillin. Bottles of 16 and 100.

References: 1. Hanson, R. J., *et al.*: J. Urol. 79:1016 (July) 1958. 2. Middletown, J. E.: Brit. M. J. ii:497 (Aug. 31) 1957. 3. Today's Drugs. Brit. M. J. i:1475 (May 26) 1962. 4. Brumfitt, W., *et al.*: Lancet i:130 (Jan. 20) 1962. 5. Anderson, K. N., *et al.*: J.A.M.A. 187:87 (Feb. 22) 1964.

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(Continued from Page 56)

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REFERENCES

AND REVIEWS

EFFERENT INNERVATION OF VESTIBULAR LABYRINTH—Y. Nomura, R. R. Gacek, and K. Balogh (Massachusetts Eye and Ear Infirmary, Boston). Arch. Otolaryng., 81:335 (April) 1965.

Acetylcholinesterase activity was demonstrated histochemically in the efferent vestibular nerve fibers and in the vestibular sensory epithelium of the decalcified petrous bones of guinea pigs. The fibers were traced from their position within the vestibular nerve trunk, past the vestibular ganglion, and finally in the nerve branches to the endorgans. Many more efferent fibers were revealed in all the branches of the vestibular nerve than previously estimated.

* * *

THE EPIDEMIOLOGY OF URINARY TRACT INFECTIONS IN HIROSHIMA—L. R. Freeman et al (Yale Medical School, New Haven, Conn.) Yale J. Biol. Med., 37:262 (No. 4) 1965.

A simple method for obtaining a semiquantitative estimate of the number of bacteria in a clean-voided mid-stream urine specimen was used to screen a study group of about 3,000 women and 2,000 men in Hiroshima City. Infections were much more common in women than in men and rose with age in both sexes. Symptoms of urinary infection, proteinuria, and pyuria were more common in infected women as compared with noninfected women. Mean blood pressure levels were significantly higher in women with infection than in the noninfected.

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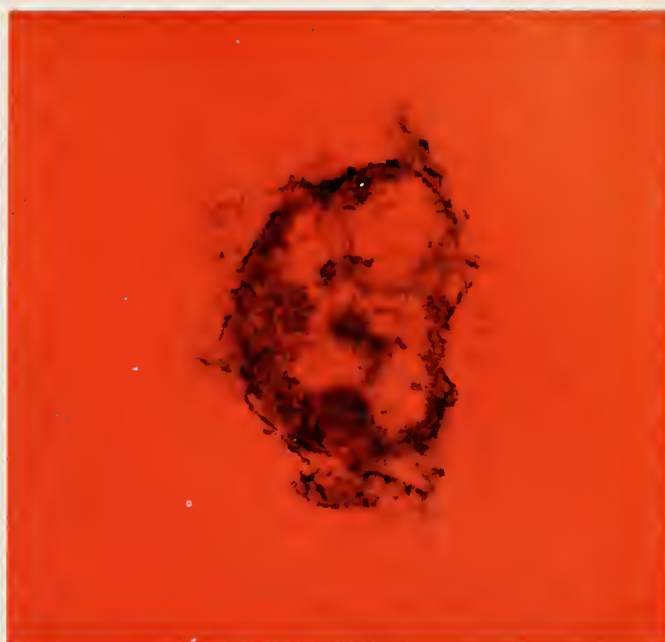
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more effective than tetracycline in reducing sputum in chronic bronchitis⁵

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Side Effects: Mild effects, such as skin rashes, diarrhea, nausea and vomiting, have occasionally appeared.

Precautions: As with other antibiotics, precautions should be taken against gastrointestinal superinfection. To date, safety for use in pregnancy has not been established.

Supplied: No. 606—Each capsule contains 250 mg. of ampicillin. Bottles of 16 and 100.

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TO THE AMERICAN MEDICAL ASSOCIATION

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John G. Morrison, San Leandro.....(1965-1966)	Frederick Ackerman, Pleasant Hills.....(1965-1966)
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O. W. Wheeler, Riverside.....(1965-1966)	Wilbur Bailey, Los Angeles.....(1965-1966)
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J. E. Vaughan, Bakersfield.....(1965-1966)	Joseph P. O'Connor, Pasadena.....(1965-1966)
Francis E. West, San Diego.....(1965)	Nicholas V. Oddo, Long Beach.....(1965)

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213 731-6397

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Berkeley.....2151 Berkeley Way 94704
415 843-7900

Sacramento.....631 J Street 95814
916 442-4711
Los Angeles.....703 State Building 90012
213 620-2900

Medical Schools in California

University of California School of Medicine, Medical Center, San Francisco 94122. Dean: William O. Reinhardt, M.D.
Stanford University School of Medicine, 300 Pasteur Drive, Palo Alto 94304. Acting Dean: Sidney Raffel, M.D.
University of Southern California School of Medicine, 2025 Zonal Avenue, Los Angeles 90033. Dean: Roger O. Egeberg, M.D.
Loma Linda University School of Medicine, Loma Linda 92354. Dean: David Burd Hinshaw, M.D.
University of California at Los Angeles, School of Medicine, Hilgard Avenue, Los Angeles 90024. Dean: Sherman M. Melinkoff, M.D.
California College of Medicine: 1721 Griffin Avenue, Los Angeles 90031. Dean: Warren L. Bostick, M.D.
University of California, San Diego, School of Medicine, La Jolla 92038. Dean: Joseph Stokes, III, M.D.

Roster — CALIFORNIA COMPONENT MEDICAL SOCIETIES

Society secretaries are requested to notify California Medicine promptly when changes are indicated in their roster information

ALAMEDA-CONTRA COSTA Medical Assn., 6230 Claremont Ave., Oakland 94618. Meets quarterly.
Carl GoetschPresident
2915 Telegraph Ave., Berkeley 94705
Frederick W. Ackerman.....Secretary
6230 Claremont Ave., Oakland 94618

BUTTE-GLENN Medical Society, P. O. Box 1008, Chico 95927. Meets Fourth Thursday.
Arthur J. Rollins.....President
247 N. Villa St., Willows 95988
John Copeland.....Secretary
1345 Longfellow Ave., Chico 95926

FORTY FIRST Medical Society, 4775 Santa Monica Blvd., Los Angeles 90029.
Paul D. Yates.....President
844 Hermosa Ave., Hermosa Beach 90254
Jordan M. Phillips.....Secretary
11239 S. Lakewood Blvd., Downey 90241

FRESNO County Medical Society, 1118 Divisadero St., Fresno 93721. Meets Second Tuesday, 6:30 p.m., Sunnyside Country Club.
J. Cooper Collins.....President
3006 N. Fresno St., Fresno 93703
Jerome Radding.....Secretary
139 N. Thesta St., Fresno 93701

HUMBOLDT-DEL NORTE County Medical Society. Meets Second Thursday.
Stanwood S. Schmidt.....President
707 K St., Eureka 95501
Halvor J. Braafladt.....Secretary
311 G St., Eureka 95501

IMPERIAL County Medical Society. Meets Second Tuesday, 8 p.m., Pioneer Memorial Hospital, Brawley.
Robert H. Worthman.....President
239 S. 8th St., El Centro 92243
M. P. Ajalat.....Secretary
319 3rd Street, Calexico 92231

INYO-MONO County Medical Society. Meets Fourth Tuesday except December, January, February.
D. L. Christenson.....President
380 N. Mt. Whitney Dr., Lone Pine 93545
W. Ray Hartwig.....Secretary
459 West Line, Bishop 93514

KERN County Medical Society, 2603 G Street, Bakersfield 93301. Meets Third Tuesday, 7:30 p.m., Society Office, 2603 G Street, except June, July, August.
Max H. Newman.....President
1420 Crestmont Dr., Bakersfield 93306
Theodore L. Bosonetto.....Secretary
2330 Truxton Ave., Bakersfield 93301

KINGS County Medical Society. Meets Second Thursday, 7:00 p.m. Place to be announced.
Dallas L. Paden.....President
1028 N. Doury St., Hanford 93230
Edwin E. Kerr.....Secretary
208 N. Doury St., Hanford 93230

LASSEN-PLUMAS-MODOC-SIERRA County Medical Society. Meets on call.
Robert C. Haggard.....President
P.O. Box 517, Loyalton 96118
Kenneth G. Korver.....Secretary
50 N. Roop St., Susanville 96130

LOS ANGELES County Medical Assn., 1925 Wilshire Blvd., Los Angeles 90057.
John A. Bullis.....President
1925 Wilshire Blvd., Los Angeles 90057
Harold E. Wilkins.....Secretary
1925 Wilshire Blvd., Los Angeles 90057

MARIN Medical Society, 1601 Second St., Suite 106, San Rafael 94901. Meets First Thursday, 7:00 p.m.
Ira H. Degenhardt.....President
707 C St., San Rafael 94901
Robert F. Schell.....Secretary
600 Mission Ave., San Rafael 94901

MENDOCINO-LAKE County Medical Society.
William W. Waring.....President
331 W. Perkins St., Ukiah 95482
Patrick R. Allanson.....Secretary
765 S. Dora St., Ukiah 95482

MERCED County Medical Society. Meets Fourth Thursday; meeting place changes.
John East.....President
652 W. 20th St., Merced 95340
Patrick J. Maloney.....Secretary
656 W. 20th St., Merced 95340

MONTEREY County Medical Society, P. O. Box 308, Salinas 93903. Meets First Thursday.
Robert P. Klinefelter.....President
505 E. Romie Lane, Salinas 93903
James W. Knight.....Secretary
601 E. Romie Lane, Salinas 93903

NAPA County Medical Society. Meets Second Wednesday, P. O. Box 658, Napa 94559
Donald E. Slaughter.....President
980 Trancas St., Napa 94558
Richard W. Neil.....Secretary
1375 Main St., St. Helena 94574

ORANGE County Medical Association, 300 S. Flower, Orange 92666. Meets First Tuesday, 7:00 p.m.
Henry V. Eastman.....President
661 W. 1st St., Tustin 92680
Wallace A. Gerrie.....Secretary
1901 Westcliff Dr., Newport Beach 92660

PLACER-NEVADA County Medical Society. Meets Second Wednesday.
H. William Shambart.....President
1300 Douglas St., Roseville 95678
Arthur R. Weaver.....Secretary
701 High St., Auburn 95603

RIVERSIDE County Medical Association, 4175 Brockton Ave., Riverside 92501. Meets Second Monday, 7:30 p.m., Spanish Arts Gallery, Mission Inn.
Donald P. Carpenter.....President
3660 Arlington Ave., Riverside 92506
Richard W. Trotter.....Secretary
6876 Magnolia Ave., Riverside 92506

SACRAMENTO County Medical Society, 5380 Elvas Ave., Sacramento 95819. Meets Third Tuesday, 8:30 p.m. Location of meetings varies.
Donald P. Hause.....President
3965 J St., Sacramento 95819
James W. Martin.....Secretary
2811 L Street, Sacramento 95816

SAN BENITO County Medical Society. Meets once a month, except July and August. Time and place to be announced.
Kent S. Taylor.....President
345 5th St., Hollister 95023
Robert D. Quinn.....Secretary
555 Monterey St., Hollister 95023

SAN BERNARDINO County Medical Society, 1875 N. D St., San Bernardino 92405. Meets First Tuesday, 7:30 p.m., Harold's Club, Fontana.
Allen F. Sterling.....President
1277 D St., San Bernardino 92405
Nicholas P. Krikes.....Secretary
25060 Base Line, San Bernardino 92410

SAN DIEGO County Medical Society, 3427 - 4th Ave., San Diego 92103. Meets Second Tuesday. Location of meetings varies.
John W. Flaiz.....President
3427 4th Ave., San Diego 92103
W. C. Hetrick.....Secretary
233 A St., San Diego 92101

SAN FRANCISCO Medical Society, 250 Masonic Ave., San Francisco 94118.
Edgar Wayburn.....President
490 Post St., San Francisco 94102
Nicholas D. Bonfilio.....Secretary
1548 Stockton St., San Francisco 94133

SAN JOAQUIN County Medical Society. Meets First Thursday, 8:15 p.m., 445 W. Acacia St., P. O. Box 230, Stockton 95201.
David Leon Green, Jr.....President
2633 Pacific Ave., Stockton 95204
Dora A. Lee.....Secretary
2420 N. California St., Stockton 95204

SAN LUIS OBISPO County Medical Society. Meets Third Saturday, 7:00 p.m., Anderson Hotel, San Luis Obispo 93402.
Tibor Betesky.....President
100 Casa St., Suite B, San Luis Obispo 93401
Louis Zimmerman.....Secretary
1010 Murtagh Ave., San Luis Obispo 93401

SAN MATEO County Medical Society, 122 El Camino Real, San Mateo 94401. Meets Third Tuesday.
William G. Larsen.....President
104 St. Matthews Ave., San Mateo 94401
Stanford B. Rossier.....Secretary
Sequoia Hospital, Redwood City 94062

SANTA BARBARA County Medical Society, 300 W. Pueblo St., Santa Barbara 93105. Meets Second Monday of the month, University Club, 1332 Santa Barbara St., Santa Barbara.
Nils Bolduan.....President
15 E. Arrellaga St., Santa Barbara 93105
Casimir Domz.....Secretary
317 W. Pueblo St., Santa Barbara 93105

SANTA CLARA County Medical Society, 700 Empey Way, San Jose 95128. Meets First Monday.
Richard S. Wilbur.....President
700 Empey Way, San Jose 95128
Gerald Besson.....Secretary
700 Empey Way, San Jose 95128

SANTA CRUZ County Medical Society. Meets every Second Month, Second Tuesday. Time, place to be announced.
Paul Roach.....President
1700 Mission St., Santa Cruz 95060
William Blade.....Secretary
1510 Seabright Ave., Santa Cruz 95062

SHASTA-TRINITY County Medical Society. Meets Second Monday of the month. Place to be announced.
Melvin L. Gumm.....President
1760 Gold St., Redding 96601
Faylon M. Brunemeier.....Secretary
2020 Court St., Redding 96001

SISKIYOU County Medical Society. Meets Sunday on call.
Rand Agood.....President
746 S. Main St., Yreka 96097
Harry Chappell.....Secretary
Dunsmuir 96025

SOLANO County Medical Society. Meets Second Tuesday, 8:00 p.m., at different meeting places.
Harle B. Grover.....President
839 Louisiana St., Vallejo 94590
Richard D. Frank.....Secretary
1200 Marin St., Vallejo 94590

SONOMA County Medical Society, 576 B Street, Santa Rosa 95401. Meets Second Thursday.
Richard C. Barnett.....President
450 Pitt St., Sebastopol 95472
Tetsuro Fujii.....Secretary
1667 Bloomfield Rd., Sebastopol 95472

STANISLAUS County Medical Society, 303 Downey Ave., Modesto. Meets Third Tuesday of the month, 7 p.m., Hotel Covell, Modesto 95354.
Everett H. Johnson.....President
190 N. Thor St., Turlock 95380
Jeanne I. Miller.....Secretary
709 18th St., Modesto 95354

TEHAMA County Medical Society. Meets at call of President.
Lynn E. Wolfe.....President
75 Belle Mill Road, Red Bluff 96080
William L. Weirich.....Secretary
210 S. Main St., Red Bluff 96080

TULARE County Medical Society, 1640 West Mineral King, P. O. Box 16, Visalia 93278.
John A. Adamson.....President
403 N. L St., Dinuba 93618
John C. Williams.....Secretary
1640 West Mineral King, Suite 107, Visalia 93277

VENTURA County Medical Society. Meets Second Tuesday each month, 7:30 p.m., Los Posas Country Club, Camarillo.
Armando Pallais.....President
1532 Saviers Rd., Oxnard 93031
F. K. Helbling.....Secretary
3081 Loma Vista Rd., Ventura 93003

YOLO County Medical Society. Meets First Wednesday.
Samuel C. Houston.....President
3 Court St., Woodland 95695
William T. Robinson.....Secretary
650 3rd St., Woodland 95695

YUBA-SUTTER-COLUSA County Medical Society.
James D. Williams.....President
389 Del Norte Ave., Yuba City 95991
Norman K. Noordhoff.....Secretary
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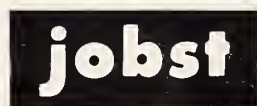
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Radiation Victims 10 Years Later

The effects on 82 Marshall Islands residents 10 years after they were accidentally exposed to fallout radiation are reported in the May 10 *Journal of the AMA*.

The accident occurred March 1, 1954, following detonation of a high-yield nuclear device at Bikini in the Pacific proving grounds. An unpredicted wind shift deposited significant amounts of fallout on four inhabited atolls to the east.

The current report is by Robert A. Conard, M.D., of the Medical Research Center, Brookhaven National Laboratory, Upton, N.Y., and Arobati Hicking of the Department of Medical Services, Trust Territory of the Pacific Islands, Saipan, Mariana Islands.

They surveyed 82 people of Rongelap Island who were exposed. As a control group, they also surveyed a group of relatives who were from the island at the time of the detonation and later returned.

Benign thyroid nodules were removed from three teenage Rongelap girls 10 years after fallout exposure. No nodules were detected in 75 unexposed children. In the current, or 11th year, three more cases of nodules have appeared, including one adult.

Other possible residual radiation effects, the report said, were slight retardation of statural growth and bone maturation in boys exposed at less than five years of age; greater incidence of miscarriages in exposed women during the first four years; incomplete recovery of some peripheral blood elements, and increased nevus-like (skin growth) lesions in previous beta radiation skin burn areas.

General health and mortality has been about the same as in the control group, the report said. No definite radiation effects on birth rate, aging, leukemia, malignancy, or genotype has been noted.

"Possibly related to radiation exposure was the fact that during the first four years after exposure an increase in miscarriages and stillbirths was noted in the exposed women (13 in 32 births, or 41 per cent), . . . compared with 21 per cent (8 in 38 births) in the unexposed women," the report said.

No specific genetic studies have been carried out, but no difference in the incidence of abnormalities in children has been noted, the report said.

No cases of leukemia in either the exposed or unexposed group have been detected.

During the first 24 to 48 hours after the 1954 detonation, about two-thirds of the Rongelap people experienced loss of appetite and nausea, the report noted. A few vomited and had diarrhea, and many complained of eye and skin irritation. These symptoms subsided within a few days.

Beta radiation burns of the skin and scalp hair loss were widespread, particularly in the more heavily exposed group. Most of the lesions were superficial, but some showed deeper ulceration, the report said. Most healed within a few weeks. Regrowth of hair was complete by six months.

Devereux Serves....

CHILDREN AND THEIR FAMILIES . . . THROUGH REHABILITATION CENTERS IN PENNSYLVANIA, CALIFORNIA, TEXAS AND MAINE

THE GENERAL COMMUNITY THROUGH EDUCATIONAL AND CONSULTATIVE PROGRAMS, OUT-PATIENT FACILITIES AND SUMMER DAY CAMPS

THE PROFESSIONAL COMMUNITY . . . THROUGH RESEARCH, TRAINING AND THE INTERCHANGE OF INFORMATION AND IDEAS



FOR MORE THAN HALF A CENTURY A
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Santa Barbara (Box 1079), California
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UNDER THE DEVEREUX FOUNDATION
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Edward L. French, Ph.D.
President and Director



Breast cancer can be highly curable if it is detected early, through regular examinations. Yet, despite all efforts in cancer education and improvements in treatment techniques in the last 30 years,

**THE NUMBER OF
BREAST CANCER DEATHS
PER 100,000 WOMEN
IN THIS COUNTRY
HAS NOT DECLINED.**

While research continues to seek new answers, it is imperative that greater efforts be made to detect breast cancer early and to get women to their doctors when chances of cure are best. That's why the American Cancer Society is encouraging its Divisions across the country to carry out special breast cancer educational programs. Newest of these are demonstration projects in which physicians in a community volunteer one day to giving breast examinations and to teaching hundreds of women breast self-examination. Breast cancer is one of the major cancer problems which we face and which together, doctor, we must try to resolve through intensified research and educational efforts.

AMERICAN CANCER SOCIETY



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The calming action of Vistaril appears to be exerted primarily on the primitive "animal brain" or limbic system, and is mediated principally through the hypothalamus. There is negligible clinical effect upon the cerebral, thalamic or spinal-cord areas. Minimal effect on the cortex may be inferred from the fact that Vistaril has no primary anticonvulsant, skeletal muscle-relaxant or sedative action in clinical use. Thus,

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Over 500 published papers, 14,493 cases attest to the effectiveness of Vistaril

1,579 nonpsychiatric patients seen in daily practice	RESPONDED: 1,286 (81.4%)
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3,095 psychiatric patients in whom Vistaril was used as an adjunct to definitive treatment	RESPONDED: 2,383 (77%)
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9,819 preoperative patients in whom Vistaril was used adjunctively in major and minor surgery	RESPONDED: 9,000 (91.7%)
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In its eight years of use, during which more than one billion parenteral and oral doses have been dispensed, pharmacologic incompatibilities, drug-induced depression, euphoria, habituation, addiction, withdrawal reactions, blood dyscrasias, hemopoietic or hepatic toxicity does not appear to be related to the administration of hydroxyzine.

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Vistaril[®] hydroxyzine

Dosage recommendations: Oral

Vistaril (hydroxyzine pamoate)

For Adults—200 to 400 mg. daily in divided doses, then adjust to individual patient requirements.

For Children under 6 years of age—50 mg. daily in divided doses, then adjust to individual patient requirements.

For Children over 6 years of age—50 to 100 mg. daily in divided doses, then adjust to individual patient requirements.

Dosage recommendations: Parenteral

Vistaril (hydroxyzine HCl)

For Adults—I.M., 50 to 100 mg. Stat. and q. 4-6 h., p.r.n.

For Children—I.M., 0.5 mg. per pound of body weight.

Formulas:

Vistaril (hydroxyzine pamoate)

Capsules: 25 mg., 50 mg., 100 mg.

Vistaril (hydroxyzine pamoate)

Oral Suspension: 25 mg. per 5 cc.

Vistaril (hydroxyzine HCl)

Parenteral Solution:

25 mg. and 50 mg. per cc.



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Precautions: Hydroxyzine may potentiate the action of central nervous system depressants, narcotics such as meperidine, and barbiturates. In conjunctive use, dosage for these drugs should be decreased. Because drowsiness may occur, patients should be cautioned against driving a car or operating dangerous machinery. The usual precautions for intramuscular injection should be followed; soft-tissue reactions have rarely been reported when proper technique has been used. On intravenous injection a few instances of digital gangrene have occurred distal to the injection site considered to be due to inadvertent intra-arterial injection or peri-arterial extravasation. Therefore, particular caution should be observed when hydroxyzine parenteral solution is administered intravenously to insure injection only into intact veins; avoid either intra-arterial injection or extravasation. Intravenous administration should be accomplished slowly, no faster than 25 mg. per minute, and not to exceed 100 mg. in any single dose.

Adverse Reactions: Drowsiness may occur which is usually transitory, disappearing spontaneously in a few days with continued therapy or correctable by dosage reduction. Dryness of the mouth may be seen with higher doses. Involuntary motor activity has been reported in some hospitalized patients on higher than recommended dosage.

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Rats Can Detect Radiation

Can man sense low doses of radiation?

Rats can, according to a report in the April 26 *Journal of the American Medical Association*.

If humans also can detect radiation, it may help to prevent their serious injury in the future.

"The risk of industrial accidents in nuclear reactors, to say nothing of the dread possibility of atomic warfare, adds new urgency to finding the answer to this query," the *Journal* report said.

Rats can be aroused from sleep by exposure to about 20 milliroentgens of x-radiation in the air, according to the report by Bernard H. Feder, M.D., of the Department of Radiology, University of California at Los Angeles Medical School, and the Radiology Service, Veterans Administration Hospital, Long Beach, Calif. The report is primarily based on research at the VA hospital by Dr. Feder and others.

Properly conditioned rats can detect x-ray exposure of less than 20 milliroentgens in the air, Dr. Feder said. Somewhat higher exposure, in the range of 10 roentgens, was consistently avoided by conditioned rats.

The rats seemed to detect radiation best through their olfactory bulbs, the organs which also react to scents. However, abdomen exposure produced the greatest "avoidance reaction" to radiation.

There is no evidence of irreversible injury to the rats from x-ray exposure at the levels required to demonstrate these effects, Dr. Feder said.

Adverse Drug Reactions Symposium

A special symposium on adverse drug reactions will be presented Tuesday, June 22, as part of the AMA's 114th Annual Convention.

The Convention will run from June 20-24 in New York City, and is expected to draw an attendance of about 25,000 physicians.

The program on adverse drug reactions will be presented by the Committee on Adverse Reactions of the AMA's Council on Drugs. Frank P. Foster, M.D., Boston, a member of the AMA Council on Postgraduate Programs, will serve as moderator.

It will be opened by an outline of the problem presented by Maxwell M. Wintrobe, M.D., Salt Lake City, a member of the Council on Drugs and chairman of the Committee on Adverse Reactions.

Another Council member, John Adriani, M.D., New Orleans, will discuss "Reactions to Local Anesthetics," and Charles M. Huguley, Jr., M.D., Atlanta, Ga., will speak on "Hematologic Reactions."

"Psychopharmacologic Drugs" will be the topic of Leo E. Hollister, M.D., Palo Alto, Calif., and George A. Perera, M.D., New York City, will speak on "Diuretics and Antihypertensives."

Other speakers and their topics will be George E. Schreiner, M.D., Washington, D. C., "Nephrotoxicity from Diagnostic Agents;" Walter Modell, M.D.,

(Continued on Page 45)



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Program Could Damage Medical Care

The recently proposed national program to "conquer" heart disease, cancer and stroke could seriously damage the present system of American medical education and medical care, the American Medical Association asserts in a critique published in the April 26 *Journal of the AMA*.

The whole proposal evolves from two undocumented and controversial assumptions, according to the AMA. These are: (1) that American physicians are unable to keep abreast of and apply new medical knowledge, and (2) that more money should be spent on medical research to find new concepts applicable to the treatment of disease. If data are available to substantiate either assumption,

the medical organization asked that it be made available to the medical profession and the public.

Recommendations for a federally financed national program were worked out over a period of several months by the President's Commission on Heart Disease, Cancer and Stroke, a 28-member body of laymen and physicians headed by Dr. Michael DeBakey of Baylor University, Houston, Tex.

When President Johnson appointed the commission in 1964, he charged it with the task of finding ways to reduce "the incidence of these diseases through new knowledge and more complete utilization of the medical knowledge that we already have."

The report of the commission in December raised many more questions than it answered, says the AMA. In essence, the medical organization declares, the commission proposes to reorganize the American system of delivering medical care to the patient and the way in which the American physician and scientist are educated.

According to the commission report, the frequency of heart disease, cancer and stroke could be reduced by adopting 35 recommendations and 11 separate proposals for legislation. While these cover nearly every facet of medicine and related activities, the principal features of the multi-billion-dollar program are proposals for:

- (1) The creation of 60 regional complexes for

(Continued on Page 42)

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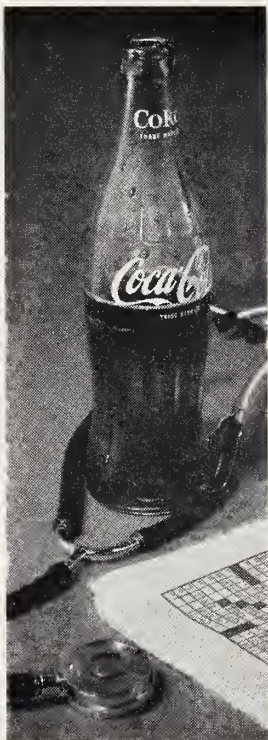
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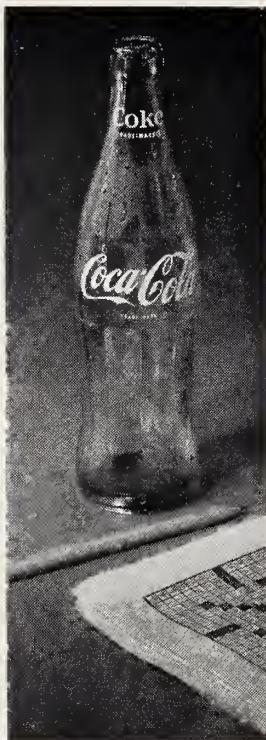
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RUBELLA and the Rubella Syndrome

New Epidemiologic and Virologic Observations

DOROTHY M. HORSTMANN, M.D., *New Haven, Connecticut*

■ *The importance of rubella lies in the 15 to 20 per cent incidence of damage to the fetus when infection occurs in the first trimester of pregnancy. The "rubella syndrome" appears as various combinations of congenital defects, chiefly cardiac anomalies, cataracts and impaired hearing.*

Now that the rubella virus has been isolated and grown in tissue culture, it is possible to study the spread of the disease, to determine apparent and inapparent infection rates and to investigate the nature of fetal infection. It has been found that the disease is a highly contagious one in the family setting, and that inapparent infections are more common than overt cases with rash. Infection of the fetus in the early weeks of intrauterine life may become chronic, and virus has been recovered from placenta and fetal specimens collected at induced abortions many weeks after the maternal disease. Infants born with the rubella syndrome are still shedding virus at birth and may continue to do so for at least several months.

Gamma globulin, which is effective in preventing measles and hepatitis, has not been highly effective in the prevention of rubella when given to those exposed to the disease. Successful control of the rubella problem will depend upon the development of an active vaccine, which is a possibility now that the virus can be grown in tissue culture.

THE IMPORTANCE OF RUBELLA, ordinarily a mild exanthematous disease with rare complications, lies in the 15 to 20 per cent incidence of fetal defect when infection occurs during the first trimester of pregnancy.^{22,23} This association between maternal

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Presented as part of a Symposium on Recent Advances in Virology at the Third General Meeting at the 94th Annual Meeting of the California Medical Association, San Francisco, March 28 to 31, 1965.

rubella and congenital anomalies was first appreciated by Gregg, an ophthalmologist, who observed a sudden increase in the incidence of congenital cataract and other malformations following an unusually large epidemic which occurred in Australia in 1941.¹³ Recognition of the rubella syndrome in infants presented the medical profession—internists, obstetricians and pediatricians—with many new problems.

The management of the pregnant woman exposed to rubella or ill with the disease in the first trimester

ter of pregnancy is still a controversial issue, complicated by many non-medical considerations. The only satisfactory answer to the problem would seem to be an effective vaccine which could assure immunity in young women before they reach the child-bearing age.

Progress toward this goal took a large step forward with the discovery reported in 1962 by Parkman, Buescher and Artenstein²⁶ and Weller and Neva³⁵ that rubella virus can be isolated and grown in tissue cultures of African green monkey kidney (GMK) and of human amnion cells. These important observations opened up a whole new era in the investigation of problems relating to the etiology, clinical epidemiology and immune mechanisms in rubella and the rubella syndrome. The virus is not an easy one to work with because although it has been found to propagate in a number of primary and continuous cell lines, it does not induce readily recognizable cytopathic effect (CPE) in tissue culture cells.²⁷

A commonly used technique for virus isolation makes use of viral interference as an indicator: throat swabs (or other material to be tested) are inoculated on monolayer GMK tissue cultures, and after 9 to 12 days the cultures are challenged with a virus which normally induces cytopathic changes (CPE) and destroys the cell sheet. If rubella virus is present, it *interferes* with the challenge virus and no CPE develops. Serologic tests are carried out using the indirect interference technique,^{25,28} or by direct fluorescent antibody methods⁷; less commonly used is the neutralization test dependent upon inhibition of the minimal CPE which develops in certain cell cultures such as human amnion³⁵ or rabbit kidney.²⁴

The availability of techniques for virus isolation and serologic tests has made it possible to demonstrate the course of infection in naturally occurring and experimental human infections, to determine the period of infectiousness, the degree of contagion and the effectiveness of gamma globulin administration in preventing or modifying the disease. A great deal of new information has already been obtained by many investigators.^{4,12,15,18,32} Some of the findings are summarized in Chart 1, which shows diagrammatically the pattern of virus excretion and the development of antibodies in relation to the clinical course of the disease. The characteristic onset is with enlargement of lymph nodes, specifically the posterior cervical chain, post-auricular and suboccipital nodes. In children this manifestation usually goes unnoticed, but adults frequently are aware of tender swollen nodes and vague malaise for as long as a week before onset of rash and fever.

By examining children exposed in a closed institutional outbreak,¹⁸ and by observing those in

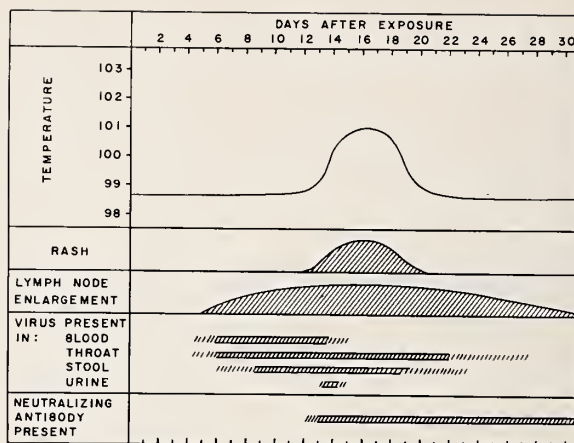


Chart 1.—Schematic diagram showing time relationships between virus excretion, antibody responses, and clinical manifestations of rubella.

whom infection has been induced artificially,¹² it has been shown that the period of viremia and the appearance of virus in the throat commonly begins during the incubation period, about a week after exposure, at the same time that the nodes begin to enlarge. Virus has been recovered from the throat and from the blood as long as seven to eight days before onset and in one instance it has been demonstrated in the throat 13 days before the rash appeared.³² Rubella virus has also been demonstrated in rectal swabs collected during the pre-eruptive period, and it has been recovered from the urine around the time of onset.

When the rash appears, the infection is already of considerable duration, and in fact neutralizing antibodies can first be detected about this time.¹² It would seem that the rash, as in measles, is not due to dissemination of virus in the skin, but is an expression of a reaction of antigen-antibody or hypersensitivity type. Since antibodies are circulating, it is not surprising that viremia can no longer be detected once the rash is fully developed. Persistence of virus in the throat is common for at least a week, and we have recovered it from one patient three weeks after onset. Excretion in the feces appears to be of shorter duration.¹²

This pattern of virus excretion indicates that the infectious period is a long one. While rubella is not nearly as contagious as measles, there is good evidence that it spreads readily when there is prolonged exposure, as in the family setting, or among recruits living in barracks. Not all infections are clinically apparent, however, and as early as 1953 Krugman and coworkers²¹ demonstrated the occurrence of symptom-free viremia in volunteers infected by intramuscular inoculation of virus. The ratio of inapparent to apparent infections seems to vary with age and other factors, but it is at least 1:1¹⁸ and in

TABLE 1.—*Rubella: Apparent and Inapparent Infection Rates in an Epidemic in a Closed Population*

Cottage Number	Number Children Tested	Susceptibles			Infection Rates in Susceptibles—Per Cent
		Number	Clinical Rubella	Inapparent Infections*	
20.....	45	24	9	15	100
22.....	38	23	14	9	100
23.....	35	22	7	15	100
42.....	31	22	10	12	100
Totals	149	91	40	51	100

Ratio disease to inapparent infection, 1:1.3

* Determined by antibody conversions from negative to positive during the course of the epidemic, and in some instances by virus isolation from the throat and/or blood.

certain circumstances may be as high as 6:1.⁸ The degree of contagiousness of rubella in a closed population, which is epidemiologically similar to a large family, is illustrated in Table 1. We found that all susceptibles exposed became infected, but in only half of those infected did rash and other clinical signs develop.¹⁸ A similar ratio was observed recently by Brody and coworkers⁴ in a natural epidemic in Alaska.

These findings with respect to the duration of virus excretion and probable period of contagion in both apparent and inapparent infections are of practical importance in relation to handling the problem presented by the pregnant woman exposed to rubella during the first trimester. Often in such instances exposure has been to a child in the family who has probably been shedding virus for some days or even a week before rash developed. In the past, because it was felt that gamma globulin might mask the disease, it was usually recommended that it be given only to women who because of religious or other reasons would not wish to have the pregnancy terminated should rubella develop. The new information indicates that there is some rationale for this approach, but it has also become evident that the hope is slim of preventing the infection, even if gamma globulin is given immediately after exposure. The data of Green, Balsamo and coworkers,¹² obtained in experimental studies in volunteers, indicate that gamma globulin given immediately before natural exposure or inoculation of the virus, does not prevent *infection*, although it may suppress the clinical evidence of the *disease*: persons treated with gamma globulin were demonstrated to have viremia, virus was recovered from pharyngeal secretions and antibodies developed in them, just as in the controls. In the controls, however, the incidence of rash and other clinical manifestations was higher. Brody and coworkers⁵ confirmed the effect of gamma globulin in suppressing illness but not necessarily infection in children, even when very large doses (comparable to 25 to 35 ml in an adult) were given, in many instances probably before actual exposure occurred.

From these observations it is apparent that gamma globulin is not a reliable means of preventing either infection or disease in pregnant women exposed to rubella. Whether it has any protective effect on the fetus is not at present certain, but investigations of this problem during the recent epidemic in the United States may possibly provide an answer to this question.

The 1964 Rubella Epidemic in the United States

With the virological tools available for working with rubella virus, the stage was set to exploit the opportunities presented by the 1964 rubella epidemic, the largest that the United States has had in at least 20 years.⁹ The outbreak involved the entire eastern part of the United States, the mid-west and to a lesser extent, the western states. The disease is reported to local and state health departments in 23 states, but it is evident that not more than one in five or ten cases is notified. The experience of Connecticut is typical: some 40,000 cases were reported among the state's population of approximately 2,500,000, but a conservative estimate places the actual number at closer to 200,000. As a result of this nationwide epidemic a great deal of new information has been obtained, particularly concerning the problems of maternal rubella, the nature of the infection in the fetus and the manifestations of the rubella syndrome in newborn infants.

Maternal and fetal infection. A number of investigators have tested fetal and placental tissues, obtained at induced abortion, for the presence of rubella virus. Selzer³¹ was the first to recover the agent from a human embryo. Alford, Neva and Weller¹ have reported the isolation of virus during the 1964 epidemic from specimens obtained from 17 of 27 women (63 per cent), one to seven weeks after the appearance of rash. Placenta, fetal tissue and amniotic fluid yielded virus. In some cases the placenta was positive while the fetal tissue was negative, suggesting that chronic infection may be present in the placenta when it is not apparent in the fetus. In several instances when it was possible to

test various fetal organs separately, virus was found to be widely disseminated in brain and viscera. Similar results have been obtained by other investigators,¹⁶ and rubella virus has been recovered from a fetus examined 18 weeks after maternal infection.²⁰

We examined 18 specimens collected up to 12 weeks after the onset of rash in the mother, and isolated virus from ten, or 56 per cent (Table 2).¹⁷ The time at which the maternal infection occurred is shown in Table 3. Most of the positive specimens were obtained when rubella occurred in the fifth to eighth week of pregnancy. In the four specimens in which it was possible to test placenta and fetal tissue separately the results were the same in both.

Rubella syndrome in the newborn. Beginning some nine months after the start of the epidemic, a number of children were born to mothers who had rubella in the first trimester of pregnancy, and in many of these children there is evidence of the rubella syndrome.^{1,2,10,30} We have studied 20 infants who came to attention because of various anomalies typical of this syndrome.² The mothers of 16 gave a history of rash during the first trimester; the father

of one had the disease early in the mother's pregnancy; in two others no history of rubella or exposure to it could be obtained.

Chart 2 summarizes the principal clinical features observed in the infants. Cardiac anomalies were the most frequent, being present in 17 of the 20 babies. The most striking and surprising finding, however, was a petechial or purpuric rash, present at birth in 13 (65 per cent) of infants. Hepatosplenomegaly accompanied the eruption in 11 babies. Other defects commonly associated with the rubella syndrome were also observed. These included cataracts, either unilateral or bilateral, and retinitis; microphthalmia and microcephaly; and esophageal atresia. Prematurity—that is, a birth weight of less than 5 pounds 8 ounces—was common, and infants who were born at term tended to be small.

In some infants there was a generalized purpuric rash covering the entire body with lesions up to 5 or 6 mm in diameter. In others only a few petechiae were seen, usually on the head, shoulders or trunk. Several had both purpura and petechiae. Purpuric spots were present in both superficial and deeper layers of the skin. They often appeared to be of different duration, some being dark blue and others, more recent ones, brighter and red in color.

Purpura was accompanied by a depressed platelet count, varying between 3,300 and 100,000 (Table 4). The skin lesion disappeared within a few days in most infants, and platelet counts usually returned to normal in a matter of days, but occasionally not for several weeks. Enlargement of liver or spleen or both accompanied thrombocytopenia in ten of the

TABLE 2.—Virus Isolation from Fetal Tissue Obtained at Induced Abortion

Weeks After Maternal Rubella	Virus Isolations	
	Number Positive	Number Tested
< 2	0	1
2-3	5	6
4-5	3	5
6-7	1	2
8-9	1	9
> 9	0	2
Total isolations	10	18 (56%)

TABLE 3.—Rubella Virus Isolation from Fetal Tissue

Maternal Rubella (week of pregnancy)	Virus Isolations	
	Number Positive	Number Tested
< 2	0	1
2-3	0	3
4-5	2	2
6-7	4	4
8-9	3	4
10-11	1	4

TABLE 4.—Rubella Syndrome with Thrombocytopenic Purpura

Platelet Counts (per cu mm)	Number of Infants	Hepato- spleno- megaly	Other Anoma- lies*	Virus Isolations (Throat)	
				Number Positive	Number Tested
< 30,000	3	3	3	3	3
30-49,000	3	2	1	2	3
50-100,000	5	3	4	5	5
> 100,000	2	2	1	2	2
Totals	13	10 (77%)	9 (69%)	12	13 (92%)

* Cardiac lesions (9); cataract (5); other (4).

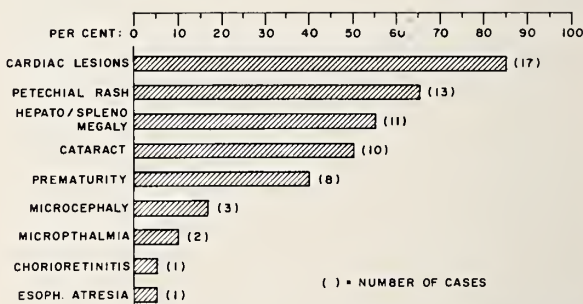


Chart 2.—Rubella syndrome—Clinical findings in 20 infants.

thirteen infants. Splenomegaly was particularly pronounced in one child in whom a hard mass extending into the left lower quadrant proved to be spleen.

In several instances, the petechial or purpuric eruption appeared to be the only anomaly present at birth, and only after two to three weeks were heart murmurs heard for the first time. The commonest cardiac anomaly diagnosed on the basis of clinical signs was patent ductus arteriosus (PDA), present in ten infants. This was verified in five by cardiac catheterization. Combinations of lesions were common, particularly septal defects with PDA. Pulmonic stenosis and ventricular septal defect also occurred as solitary lesions. One infant required surgical correction of a patent ductus at four weeks of age because of intractable congestive failure. In four others congestive failure developed but responded satisfactorily to digitalis.

This series of cases is similar to those reported by other investigators.^{1,10,30} Like Rudolph and co-workers,³⁰ we have also noted roentgenographic changes in the long bones of infants with congenital rubella. These consist of small areas of radiolucency in the metaphysis of the long bones of both upper and lower extremities. Two of the infants in our series had unexplained fractures of the humerus.

Virus isolations. We recovered rubella virus from pharyngeal swabs obtained from 17 of the 20 infants, and from conjunctival swabs of three of five with congenital cataracts.² Stool and urine specimens are currently being tested, and as other investigators have found, both are occasionally sources of virus.

To determine the duration of virus excretion in affected infants, serial specimens are being collected. Thus far, repeated throat swabs from three babies have been tested with positive results. The infants have continued to shed virus for three, four and four and a half months respectively. Similar persistent excretion has been reported by Alford and coworkers.¹ Cooper and his associates¹⁰ have recovered rubella virus from one infant nine months of age. With this pattern of prolonged virus excretion it is not surprising that affected infants are a source of contagion.^{2,11,14} We have seen typical rubella in two nurses taking care of newborns with the rubella syndrome, and an additional case in an x-ray technician who was exposed to a 6½-week-old virus-positive infant during cardiac catheterization.

Another group of infants which we have observed with considerable interest consists of apparently normal babies born to mothers who had rubella at some time during the pregnancy. So far, pharyngeal swabs obtained from 14 such infants at birth has been examined and virus has been recovered from four. Maternal rubella occurred during the sixth, tenth and fifteenth weeks respec-

tively in three; two of the children were entirely well at two to three months of age, but one has been a feeding problem and has gained weight slowly. Another positive specimen was obtained from a mother in whom rash developed on the day before delivery. Virus was recovered from the mother's blood, throat, nose and rectal swabs: the baby had viremia on the first day of life but the throat swab was not positive until the third day. No clinical evidence of rubella appeared in the infant and antibodies developed normally.

Mortality is high in infants with the rubella syndrome. We have examined tissues from two babies who died during the first two months of life, one at 4 weeks and one at 6½ weeks of age. Both presented with thrombocytopenic purpura and patent ductus arteriosus and one also had esophageal atresia necessitating gastrostomy. One child was doing fairly well, although gaining weight slowly, when it died suddenly and unexpectedly at 6½ weeks of age, a so-called crib-death. At autopsy, patent ductus arteriosus and focal pulmonary atelectasis were the only findings. No obvious reason for death was apparent. From this child, virus was recovered from brain, lung, spleen, kidney, colon wall and lymph nodes. From the other infant, lung, liver and kidney were available for testing, but only the kidney yielded rubella virus.

Comment

The recent epidemic of rubella has resulted in many new discoveries about the causative agent and the disease. The most striking clinical finding in the babies born with the rubella syndrome has been the high incidence of thrombocytopenic purpura. This has previously been described, only rarely in association with congenital rubella,* although it is recognized as one of the less common sequelae of the disease in children and adults. The unusual prominence of thrombocytopenic purpura in babies infected in utero suggests that the strain responsible for the recent epidemic may differ in its biologic behavior from previous strains, whether or not antigenic differences can be demonstrated by currently available serologic techniques.

The mechanism responsible for thrombocytopenia in the infant has not been established. Since the phenomenon usually disappears in the early days of life, it would seem likely that it is the result of interaction between an anti-platelet factor in the mother's serum with some form of virus-platelet complex in the infant's circulation. The presence of splenomegaly suggests that, as in some other forms of thrombocytopenic purpura, the spleen may be the site of destruction of the sensitized platelets.

*References Nos. 3, 6, 19, 22, 23, 29.

The virologic and immunologic aspects of infection with rubella virus acquired in utero provide some intriguing problems. The chronic infection which is induced is not a result of ordinary immunologic tolerance since rubella neutralizing substances—presumably antibody—have been demonstrated as early as the twelfth week of fetal life, and infants at birth often have higher antibody titers than their mothers.¹ The explanation of these phenomena is at present obscure, but the pattern appears to be similar immunologically to that found in congenital cytomegalic inclusion disease.^{3,4}

There has not yet been sufficient time to assess the total impact of the 1964 rubella epidemic with regard to the incidence and nature of congenital anomalies, the duration of virus excretion in affected infants and the epidemiologic implications of such chronic infection. It is clear that many new and extraordinarily interesting clinical and virologic problems have been uncovered. Previous large scale prospective studies have indicated that follow-up examinations carried out over a period of years are necessary in order to determine the true incidence of certain anomalies. Particularly has this been the case with impaired hearing, which is difficult to test in infancy. Hearing loss has been shown to be the commonest abnormality, present in 20 to 30 per cent of children exposed to rubella in utero, when examinations are carried out repeatedly over the first ten years of life as was done in the British prospective study.^{23,33} Whether the incidence of impaired hearing and other defects in children infected in utero in the recent epidemic will be similar to the pattern observed in previous outbreaks will not be known for some time. It is already clear, however, that as a result of the 1964 epidemic at least several thousand children with major congenital defects and probably many more with less severe handicaps have been born. Before the six to eight year cycle of epidemic rubella runs its course again, it is possible—even probable—that a vaccine will be available to immunize young women and prevent the potentially calamitous results of intrauterine infection. Active efforts toward this end are under way in a number of laboratories.

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Chest Contour

A Comparison of American and Russian Track Stars

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■ *Measurement of the chests and other physical features of United States and Soviet Russian track and field stars showed the Americans broader chested, taller, lighter in weight and about two and a half years younger.*

Comparison of the measurements of the American group with those made on the 1940 and 1949 N.C.A.A. track and field stars in a previous study indicated that the Americans are developing relatively broader, flatter chests and are growing taller.

BECAUSE OF REFERENCES made some years ago to certain great track stars being barrel-chested, I measured the chests of 98 track stars who participated in the 1940 National Collegiate Athletic Association track and field meet held in Minneapolis. The results indicated that the chests of these athletes were relatively broad and flat.³ Again in 1949 I made a similar study on 120 participants who competed in the N.C.A.A. track and field meet in Los Angeles. My findings⁴ were like those of the earlier study. And for the third time I was prompted to carry out such a study when the finest track and field stars of Russia and the United States met in a dual track and field meet, July 12-13, 1964, in Los Angeles. The purposes were:

1. To determine whether there was any appreciable difference between these two groups in chest development, height and weight, and

2. To compare the measurements of the 1964 American team with those made on the 1940 and 1949 track and field stars.

From the Department of Medicine, University of Southern California, Los Angeles.

Submitted January 19, 1965.

Material and Method of Study

Chest measurements were made on 40 of each group. The transverse and anteroposterior diameters of the chest were measured at the nipple level at the end of quiet expiration. A pelvimeter calibrated in centimeters was used for measurements. Age, height, and weight were obtained from the recorded figures in the official bulletin. The thoracic index (TI) which is the ratio of the depth of the chest to the width is determined by dividing the anteroposterior diameter by the transverse diameter. This gives a number less than one, which then is multiplied by 100 to give whole numbers. The TI is recorded to the third digit.

Results

Thoracic Index.—Chart 1 depicts the thoracic index range and the mean average for both the Americans and the Russians. The TI range of the American group was from 589 to 742 and the mean value was 647; for the Russian group the range was 624 to 785 and the mean value 709.

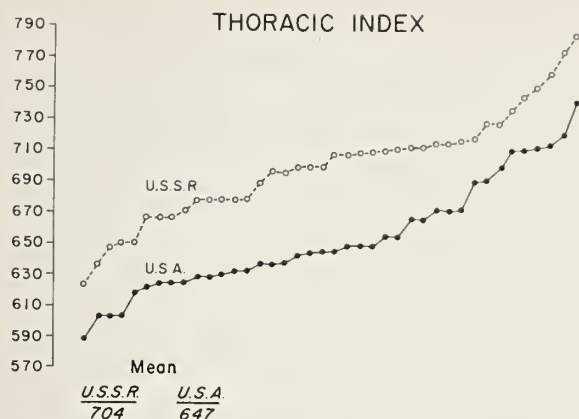


Chart 1.—Thoracic Index Range (column at left) of 40 Russian and 40 American track and field stars. (Each dot and circle represents one athlete.)

Height

The range in height of the Americans was from 66 inches to 79.5 inches and the mean average 73 inches; of the Russians, 64 to 75.5 inches with a mean of 71.4 inches.

Weight

The weight range of the Americans was from 120 to 260 pounds with a mean average of 166. For the Russians the range was from 136 to 243 pounds and the mean 171 pounds.

Age

The Americans ranged in age from 18 to 32 years with a mean average of 24 years. The age range of the Russians was from 20 to 34 years and the mean 26.5 years.

Comparison of the measurements of the 1964 American team compared with those of the 1940 and 1949 N.C.A.A. stars indicates that American track and field stars are developing broader, flatter chests



Figure 1.—Pantographic tracings showing manner of chest excursion from end of quiet expiration to full inspiration (Malone¹) in *A* deep chest, and *B* broad chest.

and are growing taller. The mean TI dropped from 677 in the 1940 group to 647 in the 1964 team, and the mean average height was almost an inch greater. There apparently was no appreciable change in weight (Table 2).

The foregoing data (summarized in Table 1) indicates that the Russians were deeper chested, about one and a half inches shorter, slightly heavier and about two and a half years older than the Americans.

Discussion

In earlier studies^{2,5,6} it was observed that the chest of the newborn is almost round. At the end of the first inspiration the depth is even greater than the width. The TI is about 1.060. The chest flattens rapidly in infancy. At the end of the first year the TI is about .780, and by age five the depth of the chest is about 72 per cent of the width (TI .720). Maturity of the chest is reached at about the age of puberty, when the TI is about .670⁷ (in the present study even lower). This is normal chest development. The deep chest, one with a high TI, probably can be considered one of retarded development. This type was found more often in the children of the poorer socioeconomic groups.⁸

TABLE 1.—Mean Averages, Physical Data, U.S.A. and U.S.S.R. Groups of Athletes

	Thoracic Index*	Age	Height (inches)	Weight (pounds)	Number Measured
Americans	647	24 yrs.	73	166	40
Russians	704	26.5 yrs.	71.4	171	40†

*Ratio of depth of chest to width.

†Only 35 cases for height and weight.

TABLE 2.—Comparative Mean Measurements of the 1940 and 1949 N.C.A.A. Stars with the 1964 Group

	Thoracic Index	Height (inches)	Weight (pounds)	Numbers Measured
N.C.A.A. 1940	677	---	---	98
N.C.A.A. 1949	667	72	166	120
American team 1964.....	647	73	166	40

The deeper the chest (higher π), the more nearly perpendicular are the ribs to the spine. The broader the chest (lower π), the more diagonally the ribs. On inspiration the greater expansion is anterior and upward in the deep chest; in the broad chest, expansion is mostly lateral, upward, and forward. Malone¹ demonstrated this many years ago by pantographic tracings of the chest, showing that the chest expansion and vital capacity are greater in the broad chest (Figure 1).

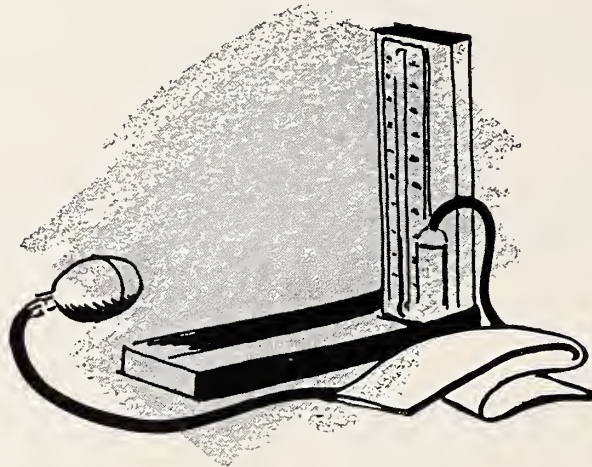
6221 Wilshire Boulevard, Los Angeles, California 90048.

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Suicide, Psychiatrists and Therapeutic Abortion

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■ *Pressures for interruption of pregnancy by therapeutic abortion constantly increase, both for liberalization of laws and for interpreting existing law more broadly.*

There are wide variations and inconsistencies in psychiatric attitudes and practices about therapeutic abortion. Follow-up patient data are scant, but necessary. Results of questionnaires indicate that such data can be obtained, and convey the impression that patients seem to manage after pregnancy, regardless of outcome, much as they had before pregnancy.

This study indicates that the incidence of suicide in pregnant women is approximately one-sixth that of the rate for non-pregnant women in comparable age groups, implying that perhaps pregnancy has a psychically protective role.

AN UNEASY EQUILIBRIUM exists between the pressures for interruption of pregnancy and the traditional codes in opposition. This conflict is poignant and personal for both patient and physician in each case considered for therapeutic abortion.

In the larger context, therapeutic abortion is an instrument of the wish to interrupt pregnancy as against the forces—physical, social and psychological—for continuation. The number of unwanted pregnancies is always a significant one, and a study of family planning in America has shown that 16 per cent of the most recent pregnancies in married women are not wanted by the wife or husband.⁶ The proportion of unwanted pregnancies rose rapidly with the number of children the couple had had, from 6 per cent in the first pregnancy to 62 per cent in the ninth.

The influences in favor of the interruption of pregnancy have inevitably grown stronger in indus-

trialized societies and have gained great impetus in view of the widespread concern about the dangers of the population explosion. In addition, it may be pointed out that the many forces of egalitarianism in our society support the drift toward the reduction of family size. Relevant to the present issue are the improved status of women and the greater importance of women in an economic role outside the home. Also many birth control measures are unequally utilized according to class position. As a part of this trend, there are constant pressures toward liberalization of the laws concerning therapeutic abortion in California.

In the more narrow context, therapeutic abortion is a device used to interrupt pregnancy where the criteria conform to specific legal requirements, namely, where continuation of the pregnancy imposes a danger to the life of the mother, which is the criterion used in the law of California and a majority of other states. The discrepancy between California law and actual practice is well established.¹⁰

From the Palo Alto Medical Research Foundation, Palo Alto.
Submitted January 25, 1965.

In a recent session of the California legislature bills¹ were introduced to change the criteria from danger to the life of the mother to danger to the life or health of the mother and consideration of the soundness of the child.

If therapeutic abortion is considered as one element in the attempt to control the number of births or to forestall the possibility of unwanted children, then it is understandable that psychiatrists become involved in part because of their concern about rights and dignity¹² of particular individuals with whom they deal and also because of their participation in efforts toward benevolent social change. In this communication we are concerned only with the psychiatric aspects of therapeutic abortion. Indeed, therapeutic abortion is now sought more and more frequently on psychiatric grounds.

The present study arose over the concern about the lack of systematic follow-up on women who had been evaluated for consideration of therapeutic abortion (on psychiatric grounds), and who were or were not recommended for abortion and were or were not aborted. It appeared that many psychiatrists were uncomfortable with the task of deciding whether or not the patient should be aborted if she came recognizably close to fulfilling the legal criteria; and a number of psychiatrists did feel strongly enough about the matter to avoid getting involved in any way in this kind of determination. Further, it was observed that there were numerous inconsistencies in the attitudes and practices of psychiatrists who rendered these judgments, as evidenced by the presentations before therapeutic abortion committees on which the authors have served. The principal criterion for psychiatric recommendation is the likelihood of suicide as a danger to the life of the mother. The difficulty of this decision accounts in part for the lack of clear and consistent standards.

In order to clarify these issues, it was decided to embark on a pilot study to ascertain:

- (1) The availability of data concerning the attitudes and practices of psychiatrists who gave opinions regarding therapeutic abortion.

- (2) The availability of follow-up data on those women who had been considered affirmatively or negatively for therapeutic abortions (including those who were or were not aborted), and

- (3) The risk of suicide in pregnant women.

The findings seemed to be of sufficient interest and consistency to warrant reporting as preliminary results and to justify further investigation.

The California law makes abortion a felony "unless the same is necessary to preserve her life . . ."⁴ Considerations of the health of the mother or of the fetus are immaterial from a legal point of view.

Psychiatric Practices

A questionnaire designed to elicit attitudes and practices concerning psychiatric indications for therapeutic abortion was sent to 100 psychiatrists, taken at random, in private practice in northern California. Sixty-nine responded.

The most striking feature of the answers was the lack of unanimity in the attitudes and practices of psychiatrists in a matter which is assumed to have scientific criteria and legal validity. For instance, one question had to do with the opinion as to the effects of pregnancy on mental illness. Fifteen of the respondents stated that morbidity was increased, 13 felt that pregnancy imposed relatively minor stress, and 25 were equivocal or indefinite in their opinions.* In a question designed to elicit the attitudes of psychiatrists toward doing such consultations, the split was almost down the middle, with 28 disliking doing them, 29 having little or no objection, and 12 not replying. Those who did more consultations reported less dislike of doing them, and also tended to recommend abortion more frequently—a reasonably expected phenomenon. The range in number of such consultations done varied from a maximum of approximately 12 per year down to none. Further examination of the data showed that one group of five psychiatrists did about 35 per cent of the reported consultations; the remainder of the 69 seemed to form another distinct group where there was a regular distribution over a range from three who did five to eight a year, to 18 who did less than one a year.

Of the 69 replying, 20 said that they had not treated or seen genuine suicidal attempts or psychotic reactions (no distinction was made between these two in the questionnaire) in pregnant women. However, 41 replied affirmatively, while four were equivocal and four did not answer. One question inquired as to whether it was improper or inconsistent for a *therapist* of a given patient to recommend abortion. Five respondents did not answer, 18 felt it was improper and, surprisingly, 36 felt that there was no impropriety involved. Ten gave equivocal responses.

In determining what the psychiatrists felt should be the criteria for abortion, it was found that virtually all respondents reported that suicide potential and psychosis were positive indications for recommendation. Also, a major proportion felt that a history of severe postpartum or severe antecedent mental illness should be among the criteria.

The opinion that the present laws are inadequate was virtually unanimous and a wide variety of other recommendations for change was suggested. A sub-

*Some responses may not total 69 since some of the questions were not answered by all respondents.

stantial number felt that socio-economic factors, rape, incest, and extreme youth were factors which should be considered. Other indications suggested by a few were psychosis of the father, congenital diseases, problems of health and fitness and age of the mother or father, unwillingness to have children, divorce after conception, adultery and narcotic addiction.

The data reported would seem to reflect the role of the psychiatrist in that he aligns himself with so-called progressive social change, particularly in those spheres where he can show concern for the welfare and dignity of the individual as a patient or as a member of society.

Attitudes of Patients

In an effort to determine whether it is possible to obtain follow-up data on patients, a questionnaire designed to elicit directly from the patient her attitudes about therapeutic abortion was sent to the 23 patients seen in consultation by one of the authors (AJR) between 1952 and 1963. Of the 23, seven were not located, eight evidently received questionnaires but did not return them and eight returned completed questionnaires. Those that were returned gave the distinct impression of being thoughtful, articulate and detailed responses. Of the eight women who completed the questionnaires, three had received therapeutic abortions and five had not. While the numbers are not sufficient to form any substantial conclusions, the impression was conveyed that the patients generally seemed to be managing after the pregnancy, regardless of the outcome, much as they had before the pregnancy, the badly adjusted still having trouble, the more well-adjusted having less difficulty. These findings suggest that follow-up data on such patients are readily obtainable and systematic studies are therefore possible with larger numbers of patients, especially where there has been personal contact with the investigators. Arranging for follow-ups before an abortion is performed would undoubtedly facilitate these procedures.

Risk of Suicide

It has been pointed out that the major criterion for the recommendation of therapeutic abortion is the risk of suicide.

Available evidence is equivocal. Swedish studies showed eight per cent of women who killed themselves were pregnant.² On the other hand no suicides occurred among several large groups of women who were denied therapeutic abortion.^{8,11} Observations in New York City^{9,13} suggest that proportionately fewer pregnant women commit suicide than those who are not pregnant. An attempt was

made to evaluate this risk in California. Accordingly coroners' records of three counties in northern California (San Mateo, Santa Clara, San Francisco) having total population of about two million were reviewed for the years 1961, 1962 and 1963. For this period, three instances of suicide by pregnant women were found. This figure was compared with the statistically predicted figure for women of child-bearing age in the three counties. From this it was determined that the actuarial "expectancy" of suicides for the group involved was 17.6, in contrast to the three found in which the woman was pregnant.

These figures were arrived at in the following fashion. It was found that there was a total of 207 suicides in the three counties in the three-year period for women in the age span 16 to 50 years. The small number of three suicides in pregnant women seemed a noteworthy item even though precise statistical analysis is not possible at this time. The comparable figure for the predicted rate has many variables relating to age groups, marital status and correct reporting of suicides. The rough figure of a predicted number of 17.6 was arrived at by a comparison of the actual amount of time that any given woman of child-bearing age is in a state of pregnancy as compared against the total child-bearing period.

The algebraic computation was as follows:

$$\frac{T \times 36 \text{ mos.}}{P \times 9 \text{ mos.}} = \frac{207}{x}$$

(T* represents the total female population in the child-bearing age, and P* represents the total live births.) Inasmuch as 207 represents the total number of suicides (age 16 to 50), x yields the predicted number of suicides for the pregnant population. The resulting figure of 17.6 is a minimal figure (it is based on the live birth rate and does not take into account pregnancies resulting in stillbirths, and interruptions from other causes) and it therefore decreases the discrepancy between actual and predicted rates. However, as against minimization on this account, the standard for the total suicides introduces error of an indeterminate nature in that the child-bearing age has been extended to 50. On the one hand this would tend to increase the discrepancy because child-bearing occurs more frequently in the lower periods of this span of years, but there is also some countervailing tendency in that the assigned child-bearing period represents a smaller proportion of the total span. In summary, precise validation requires a finer statistical analysis including division of women in the child-bearing age into married and unmarried groups, but the number of actual suicides seems to be clearly less than expected.

^{*}T* was 380,905, and P* was 129,408.

The details about the cases of suicide were meager and fragmentary inasmuch as they were obtained from the abbreviated coroners' records. However, they seemed to be sufficiently interesting to warrant description even though significant conclusions cannot be drawn from so few cases. In one case a 25-year-old unmarried pregnant woman, living alone, shot her rejecting lover and then killed herself. Another case was of a 33-year-old multiparous wife of a serviceman, who in the second trimester of pregnancy, leaped from the Golden Gate Bridge. This woman was living on a military installation and in theory had access to medical care at no cost, and yet her depression did not cause those close to her to provide psychiatric care. It was said that the ostensible reason for her depressed state was her concern about the impending separation from her husband who was about to be shipped overseas. The third case was that of a 17-year-old woman who in the last month of pregnancy jumped off a highway overpass. The scanty data disclosed that she had recently come to California, having separated from her family of origin in Hawaii, and was in an environment of some stress and rejection in her new living arrangements with her husband's family.

Discussion and Conclusions

The data obtained from the results of the questionnaires returned by psychiatrists indicate a marked lack of consistency and uniformity in the attitudes and practices of the psychiatrists who are called upon to give opinions concerning psychiatric indications for therapeutic abortion. It would appear from the good percentage of response to the questionnaire and the free expression of opinion contained therein that the survey represents an accurate appraisal of the prevailing psychiatric viewpoints. From this, it can be inferred that the question of performance of therapeutic abortion is to a large measure dependent upon the particular psychiatrist who gives the judgment and it becomes general knowledge as to which psychiatrist in a community is more liberal in his recommendations.

The extreme range of opinion represented among the psychiatrists is a far cry from the scientific objectivity that one hopes would apply to determinations affecting the life and health of patients. The range was from those who essentially never recommend therapeutic abortion to those who seem always to do so, from those who regard pregnancy as definitely increasing the incidence of mental illness to those who feel that pregnancy represents virtually no additional stress. While a fair preponderance of respondents reported having seen or treated severe reactions in the presence of pregnancy, this is not consistent with the small inci-

dence of successful suicide recorded. It might be countered that more suicides would have occurred except for prompt psychiatric intervention or treatment in the form of therapeutic abortion; but it has also been observed that of the many women considered for therapeutic abortion, whether in fact aborted or not, very few seemed to proceed with any psychiatric treatment.³ Further, the therapeutic abortions were done disproportionately more often in the limited number of patients belonging to the higher socio-economic groups,⁷ so that this would on a statistical basis cast some doubt on the effectiveness of therapeutic abortion in preventing suicides.

The law at present deals only with the danger to the life of the mother. Should the law be amended at some future time to take into account the issue of danger to the health as well, then it would become necessary to assess the psychiatric morbidity, the incidence of psychosis during pregnancy and postpartum psychosis in assessing the danger to the health of the mother.

It has been observed³ that the psychiatrist may be manipulated into distortion and exaggeration of the patient's disturbance, with the consequence that the clinical situation comes to approximate the requirements of the law in order to obtain the abortion desired by the patient or her physician. In some instances, iatrogenic pressures intensify symptoms so that discontent becomes illness. It might be pointed out about the issue of therapeutic abortion that it is one of the few entities in psychiatric practice in which psychiatrists readily take on the role of dealing with a symptom and the management of a symptom as a primary maneuver. This is highly contrary to the general current in psychiatric principles and it directly conflicts with trends toward giving greater freedom to patients in their movements and decision. For instance, in the management of suicidal patients, the tendency is to assume a substantial amount of risk rather than to attempt to guarantee absolutely against mishap.

One can only speculate that the willingness of psychiatrists to inject themselves into the role of decision-making about therapeutic abortion reflects some covert need. Superficially, it may perhaps represent some bending to the conscious wishes of patients and referring physicians, but one cannot feel that this is the only significant item. Perhaps it is more likely to be a projection of the psychiatrist's concern with the rights and dignity of the patient and the inadequacy of the present law.

The finding that the number of actual suicides was much less than the predicted number was surprising. Can it be assumed from this that pregnancy is a period of lessened vulnerability to stress rather than of increased vulnerability? If this is so, the

reasons invite speculation. Perhaps physiologic and instinctive factors manifest themselves in greater maternal protectiveness. On the other hand, there may be effective mechanisms of increased social protectiveness and support. The fragmentary data about the three actual cases of suicide support a contention that the pregnant woman is less vulnerable because she receives greater social protection. In the cases cited, rejection, separation and loss of support seem to be paramount. These factors appeared to be acute rather than chronic.

There are other implications. A pertinent one is that because of the lack of uniformity of psychiatric opinions, a case might be made for removing the decision entirely from the realm of psychiatric indications. If the social forces which manipulate psychiatrists into taking over this role are of sufficient strength, then perhaps this represents a trend which will be manifested by other developments. These could include translating the social needs by legislative procedure into consideration of the health of the mother as well as the (at present) exclusive consideration of life. A variety of other issues—social, medical and psychologic—might merit scrutiny, such as the intactness of the fetus, economic status, extreme youth, illegitimacy, rape, incest, broken family and the like. One might speculate further that the pressures toward facilitating the interruption of pregnancy could lead to removal of the decision from purely medical hands into a more representative body of opinion from the community at large, including others beside physicians. This would approximate the situation as it is at present in Denmark. From the point of view of psychiatrists, such a change might be welcome in that psychiatrists seem to be forced into the position of making decisions which are basically non-scientific and, in fact, often contrary to the spirit of other trends in psychiatry.

It must be emphasized that the data reported here are preliminary and serve only to identify trends. These trends should be further tested and evaluated with larger numbers of patients since data seem readily available. Patients in this study were generally cooperative and willing to give information; and any reluctance of physicians to approach them directly seemed unwarranted.

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Homeostatic Problems In General Surgery

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■ *For electrolyte problems that arise during surgical procedures, the surgeon must be versed in the physiologic function of the organs that play vital roles in homeostasis. Pulmonary and renal evaluation before operation can give forewarning of potential dangers. Hyperaldosteronism, a disease entity influencing electrolytic changes and causing other pathophysiological effects, should be understood by the surgeon. Not only should he understand the causes of dehydration, hyperhydration, metabolic and respiratory acidosis and metabolic and respiratory alkalosis, he should also be able to recognize their deleterious effects clinically, know how to make use of adequate laboratory procedures to substantiate a diagnosis and determine the effect of treatment.*

The effect of water deficit and water excess, and of deficits and excesses of such ions as sodium, potassium, calcium, carbon dioxide and bicarbonate on the renal, cardiac, pulmonary and neuromuscular systems must be considered.

Tetany before or after operation challenges a surgeon's diagnostic acuity. Relying on laboratory tests only, without correlating the results with history and clinical features, may lead to errors in the administration of electrolytic fluids.

NOWADAYS knowledge of fluid content, blood volume and electrolyte balance is as important to surgeons as anatomy, surgical technique, antisepsis and antibiotic therapy.

Lack of understanding in any one of these phases can result in greater morbidity and in some instances a possible catastrophe to the patient.

In addition to cardiac evaluation before operation, experience has shown the importance of considering pulmonary, renal and at times hepatic functions, for serious fluid and electrolytic problems rarely occur unless one of these organs is temporarily or permanently damaged.^{11,13}

Homeostasis—that is, fluid and electrolytic balance—is maintained by the combined action and interplay of the hypothalamic centers of the brain, the anterior and posterior pituitary glands, the adrenal glands, the kidneys, the inherent buffer systems, the skin with its sweat glands, the respiratory

and cardiovascular systems, the blood volume, fluids and red cell mass.²

Surgical procedures entailing tissue handling will elicit “stress reaction” which has decided effect on homeostasis. There is evidence that trauma, surgical or otherwise, excites the hypothalamic centers, which in turn act upon the anterior and posterior pituitary glands, causing the former to secrete ACTH (adrenocorticotrophic hormone) and the latter to produce ADH (antidiuretic hormone). An increase in the ADH results in retention of water and “water loading.” In time water receptors are stimulated, and they transmit their impulses to some centers of the hypothalamus where a hormone, “adrenoglomerulotropin,”⁷ is secreted. This has an effect on the adrenal cortex, causing the release of a hormone called aldosterone, its main effect being on the renal tubules to promote the retention of sodium and the excretion of potassium. Reports in the literature have given a good deal of attention to

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the surgical management of primary hyperaldosteronism.^{3,4,12,14}

Research work has shown the kidneys also to be the site of a humeroaldosterone stimulating hormone.⁵ This work awaits further collaboration and may definitely establish another function of the kidneys.

It is obvious that the injudicious use of large amounts of saline solution postoperatively would run counter to the physiological action of the body in these instances.

Renal function maintains electrolytic balance in the extracellular fluids by conserving base and keeping shifts in urinary pH in a range of 4.5 to 8 with a fairly even extracellular fluid pH. Without renal function the buffer systems would collapse, causing electrolytic imbalance and bringing about hyperkalemia, hyponatremia and death.

Kidneys that can concentrate urine to 1.032 are able to excrete in a 24-hour period 35 grams of solutes, mainly urea, in a water media totaling 500 ml. However, if they are impaired and can concentrate only to 1.010, it would require 1,450 ml of water in 24 hours to excrete that amount of solutes. Hence, to help in maintaining water balance after operation it is important to know the concentrating power of the kidneys beforehand.

With healthy kidneys and glycosuria not a factor, specific gravity determination of urine is a good method of determining fluid balance, as a low weight suggests fluid excess and a high weight a fluid deficit.

A healthy adult in a normal environment and not sweating excessively requires at least two liters of water in 24 hours to maintain normal water balance. Less than that amount will lead to hypohydration and an excess of serum solutes. On the other hand excessive intake of fluids leads to diminished serum solutes. Either condition can begin a chain of undesirable consequences. (See Table 1.)

TABLE 1.—*Signs and Symptoms of Water Deficit and Excess Relative to Solutes (Taken from Lilly's P. B. No. 1 Vol. XXVI, February 1961, page 8)*

Deficit	Excess
Serum solute greater than 285 mOsm./L—dehydration	Serum solute less than 270 mOsm./L—hyperhydration
Thirst	Headache
Concentrated urine	Confusion
Oliguria	Nausea
Fever	Vomiting
Irritability	Weakness
Lethargy	Muscle twitching
Muscle twitching	Muscle cramps
Electroencephalogram changes	Convulsions
Acidosis	Electroencephalogram changes
Respiratory failure	Coma
Circulatory failure	

The blood buffer systems, working in harmony with the lungs and kidneys, play vital roles, neutralizing surplus hydrogen ions and releasing them like a sponge. One system of significance in this process is the carbonic acid-sodium bicarbonate system. The normal value of the ratio is 1:20—that is, there are normally 1.3 milliequivalents of carbonic acid and 27 milliequivalents of bicarbonate in one liter of plasma representing extracellular fluid.

Electrolytic fluids flowing through the vascular system consist of acids, bases and salts which dissociate into electrolytically charged particles called ions. These are measured by their chemical combining powers and not by their chemical weight. The former is expressed by the term *milliequivalent* and the latter by *milligrams*. Milliequivalents per liter (mEq/L) = $\frac{\text{mg per 100 ml} \times 10}{\text{valence}}$.

atomic weight

Any number of milliequivalents of sodium, potassium or any cation always reacts with precisely the same number of milliequivalents of chloride, bicarbonate or any ion.⁶

The average male weighing 150 pounds has a total body sodium ion of 2,700 to 3,000 milliequivalents. Unlike potassium, most of the sodium (around 2,000 milliequivalents) is found outside the cells. The normal serum sodium is 138 to 140 milliequivalents per liter. This ion moves from the extracellular to the intracellular space very slowly, but the concentration of sodium within the cell changes quickly, due to the rapid movement of the water in and out of the cell.

Serum sodium levels do not reflect the total body sodium, as serum levels can be low even while the total body sodium is high or low or normal. One should not treat the sodium level per se, but the causes of fluid imbalance.¹¹

According to Hardy⁹ the sodium ion is a dominate ion of the extracellular fluid. The chemical physical structure of this extracellular fluid is built around the sodium content. Low sodium levels reflect the composition of extracellular fluid both volumetrically and electrically. The amount of sodium ions determines largely the water retained in the extracellular spaces. Low plasma sodium levels are principally found in water excess, following trauma. In such circumstances the sodium ion is not lost, but the absolute volume of the extracellular fluid is increased to dilute the sodium. High levels are found in water deficit and renal insufficiency.

The average man has a total body potassium of about 3,200 milliequivalents, the average woman 2,300 milliequivalents. Unlike sodium, the major portion lies within the cells. Serum potassium ranges from 4.1 to 4.7 mEq per liter. When cellular metabolism ceases in a localized area, potassium leaves the cells and sodium enters. Even a great deficiency

of cellular potassium may not be reflected in a decrease in serum concentration. It has been found that many patients have low serum levels, ranging from 1.8 to 2.1 mEq per liter, without evidence of hypopotassemia; and, conversely, many will have the clinical evidence and still have normal levels of serum potassium.¹⁵ However, persistent hypokalemia is shown to produce extreme vacuolization of the proximal convoluted tubules of the kidneys, impairing renal function and bringing about myocardial necrosis. In the presence of myocardial necrosis an electrocardiogram will show several changes, a prominent one being low T waves. Paralysis of the smooth and skeletal muscles is another concomitant of hypokalemia, probably due to a failure in the myoneural conduction system.

High potassium serum levels are to be taken seriously, as this ion exerts its greatest effect upon the heart muscle.¹⁵ A level of 8 to 10 mEq per liter will result in cardiac standstill. An important electrocardiographic change is elevated T waves with high peaks. This electrolyte should not be given in renal failure or in adrenal insufficiency. In the former the potassium will not be excreted, hyperkalemia developing. In the latter, there is already an increase in blood serum potassium, together with low sodium ion.

The normal range of serum chloride as chloride ion is from 62 to 67 mEq per liter. The chlorides appear chiefly in the form of sodium chlorides. The red cells contain half as much chloride as the plasma.

A decrease in blood chlorides following vomiting or gastric suction is accompanied by a decrease in urinary chlorides and an increase in sodium bicarbonate ion and alkalosis. In severe water deficit or dehydration, there is an increase in blood and urinary chlorides, with acidosis.

The calcium ion has a relationship to tetany, which may prove startling and confusing to the surgeon. There are many causes of hypocalcemia, such as hypoparathyroidism, rickets, and steatorrhea due to pancreatic insufficiency. The normal range of serum calcium ion in the extracellular fluid is from 4.5 to 6.0 mEq per liter.

In excessive diarrhea, generalized peritonitis and fluid loss from duodenal, pancreatic and small bowel fistulas, calcium is sometimes lost in excess, along with potassium and sodium, resulting in tetany. When severe acidosis occurs from an excessive loss of sodium ion, the calcium ion in the extracellular fluid increases in an attempt by the body to substitute this cation for the lost sodium. Then if sodium-containing fluids such as sodium lactate are administered and the acidosis is controlled, the calcium will be excreted in the urine by the kidneys, resulting in hypocalcemia and tetany. Other causes

are the prolonged transfusions of citrated blood or fluids lacking in calcium.

Respiratory alkalosis can occur in patients with the hyperventilation syndrome. Sometimes these emotional patients, exhaling large amounts of carbon dioxide, have generalized seizures. They may also have an increase in neuro-muscular activity with tetany manifestations, which can be mistaken for tetany due to hypocalcemia from other causes. It has been stated that with excessive loss of carbon dioxide, "ionizable" calcium is reduced, initiating muscular activities that lead to signs of tetany. However, this has been disputed by other investigators, who found no significant change in either the "protein bound" serum calcium or the "ionizable" calcium level during hyperventilation.¹⁶ While it has not been definitely established that respiratory alkalosis per se increases neuromuscular activity, it is known that these symptoms are not relieved by intravenous calcium unless it is given as an acid salt such as calcium chloride,¹ in which case the chloride is the effective agent. Another method of treatment for respiratory alkalosis, if the patient is conscious, is to have him breathe into a paper bag and rebreathe the expired air for twenty to thirty seconds.

Metabolic alkalosis occurs when there is a rise in blood pH or a deficiency of the hydrogen ions. In surgical cases, this condition usually results when there is a greater loss of chloride ions than of sodium ions such as might occur with continuous gastric suction, pyloric obstruction from peptic ulcers, prolonged vomiting, continuous drainage from biliary and pancreatic fistulas and small bowel obstruction. (See Table 2.)

To maintain ionic equilibrium in this situation, the available bicarbonate in the blood increases, resulting in metabolic alkalosis. Further, the potassium and calcium ions are also lost in large amounts, which brings about hypokalemia, hypochloremia and hypocalcemia. The latter, if severe enough, causes tetany.

The diagnosis of metabolic alkalosis is based on the history of electrolytic loss as described, and the clinical sign is hypopnea. The arterial blood pH

TABLE 2.—*Electrolytic Contents of the Bowel at Various Levels**

	(mEq per Liter)		
	Sodium	Potassium	Chloride
Stomach	60	9	90
Bile	145	5	100
Pancreas	40	5	100
Small bowel	105	5	100
Ileum	115	5	105
Cecum	80	20	50

*Data from Randall, H. T.: Water and Electrolytic Balance in Surgery, *Clinic of North America*, 32:445, 1952.

will be 7.5 or more, the carbon dioxide combining power will be greater than 30 mEq per liter, and bicarbonate ion content will be increased.

For an adult patient who has severe metabolic alkalosis with hypopnea and cyanosis, 100 ml of 0.01 hydrochloric acid in 0.6 per cent sodium chloride solution should be given intravenously, and this should be repeated hourly if necessary until the condition improves. In mild to moderate metabolic alkalosis, isotonic saline solution may be given intravenously, which supplies more chloride than sodium. For hypokalemia which is usually present, 0.2 per cent solution of potassium chloride with 5 per cent glucose in water is also given intravenously until the clinical condition improves.²

Respiratory acidosis is another electrolytic problem that deserves serious consideration. Determining pulmonary function before surgical operation, especially in patients known to have such conditions as pulmonary emphysema, chronic bronchitis, bronchiectasis, asthma and laryngeal spasms, will help to avoid the hazards of this electrolytic imbalance. Often in patients with these respiratory impairments, chronic carbon dioxide retention develops, thus depriving the respiratory centers of its effect. Giving large quantities of oxygen in such circumstances might remove the only remaining hypoxic stimulus that acts upon the aortic and carotid body chemoreceptors.⁸ This would worsen the condition, resulting in narcosis and possible catastrophe. If pulmonary function tests before operation show carbon dioxide retention, it may be possible to overcome the condition to some extent by carrying out hyperventilation of regulated quantities of oxygen through use of a positive pressure respiratory apparatus.¹

During respiratory acidosis the kidneys compensate by excreting the excess acids and withholding base bicarbonate, this action resulting in a high bicarbonate content in the blood. This elevated blood bicarbonate should not be confused with metabolic alkalosis. The proper diagnostic procedure is the determination of arterial blood pH, which will be below 7.5.

The most common cause of metabolic acidosis in the surgical patient is the more rapid loss of sodium ion than of chloride ion, as in diarrhea.² In this condition, base bicarbonate of the blood is reduced due to the depletion of sodium. Moreover, potassium and calcium ion may be reduced, the latter resulting in tetany. In metabolic acidosis there is a drop in blood pH or an excess of hydrogen ions. The amount of change in pH alters cellular function. The lowest pH compatible with life is approximately 6.8. Metabolic acidosis in a surgical patient should be suspected if there is a history of loss of electrolytes through escaping fluids, as in profuse

diarrhea, burns and sinus tracts from the small bowel. The clinical sign is hyperpnea. Confirmatory laboratory tests are determination of the arterial blood pH, which will be below 7.4, and carbon dioxide combining powers below 25 mEq per liter.

To administer only isotonic saline solutions in such cases might not be effective, for to do so would merely increase the chloride ion more than the sodium ion. An elevation of 10 mEq of chloride ion per liter results in a fall of 10 mEq of bicarbonate ion per liter,³ which brings about an undesirable further reduction in the base bicarbonate. It would be better therefore to give a solution containing more sodium ion than chloride, such as M/6 sodium lactate in water. Even this solution might not be effective if the acidosis is severe, for the low pH may alter cellular function and impair lactate metabolism.¹⁰ It may be necessary to give sodium bicarbonate 1.3 per cent solution intravenously until dyspnea and hyperpnea are corrected. Then one or two liters of Ringer's lactate solution may be given to correct the osmolar concentration and volume deficit.

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Acute Appendicitis

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■ *Acute appendicitis still is a cause of considerable morbidity and now and then of death. The diagnostic accuracy in 316 patients operated on for acute appendicitis at Holy Cross Hospital was 76 per cent. In 24 of 239 cases of proved acute appendicitis, perforation had occurred, and the morbidity in those cases was three times that in the cases without perforation. Review of the cases did not reveal any clear-cut diagnostic criteria that might be used to predict perforation.*

A study of 30 patients with mesenteric lymphadenitis who were inadvertently operated on in the belief they had appendicitis, revealed that this condition is most likely to occur in young females with only a slight increase in the number of leukocytes. Although positive diagnosis of acute appendicitis is a difficult problem, the morbidity associated with needless operation is so much less than that which occurs in acute perforated appendicitis, that prompt exploration in any questionable case seems warranted.

TO CAST LIGHT on the still difficult problem of distinguishing acute appendicitis from other abdominal conditions that cause many of the same symptoms but do not necessitate operation, the records of patients with a diagnosis of acute appendicitis seen at Holy Cross Hospital, San Fernando, in a period of two and a half years were reviewed. A community hospital situated adjacent to Los Angeles, Holy Cross is staffed by both general practitioners and surgical specialists.

All the records of cases in which a diagnosis of acute appendicitis was made, including cases of wrong diagnosis, were scanned. In the period of two and a half years, 316 patients were operated on with a diagnosis of acute appendicitis, and in 239 of them (76 per cent) the diagnosis was confirmed by pathologic examination.

The average age of the 239 patients with acute appendicitis was 22 years (range 4 to 87 years) and the ratio of males to females was 1.85 to 1.

The symptoms of abdominal pain, nausea and vomiting, as well as the physical findings of abdominal pain with or without rebound tenderness, were present in nearly all cases in which a clinical diagnosis of acute appendicitis was made. Fever and a history of recent upper respiratory tract infection were so infrequent that they were of no diagnostic value.

The average leukocyte count was 14,300 cells per cu mm (range, 5,100 to 27,500) while the duration of stay in hospital averaged four days (range 1 to 58). Antibiotics were used in 24 per cent of the cases, tetracycline most often. In many cases broad spectrum and anti-coccal antibiotics were used in combination. There were 33 postoperative complications in 24 cases (Table 1).

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Perforation had occurred by the time of operation in 24 of the 239 cases of acute appendicitis. Data on the group with perforation were as follows: Age range 4 to 37 years with an average of 31. The ratio of males to females was 1.85 to 1. Leukocyte count averaged 14,100 cells per cu mm (range 7,100 to 26,300). Hospital stay averaged nine days (range 1 to 25). Antibiotics were used in 19 of the cases, combinations of them in most instances. Eight patients had 14 postoperative complications (Table 2).

Genital Tract Disorders

Ten female patients with disease of the reproductive tract were mistakenly operated upon for acute appendicitis. Three had acute salpingitis on the right side and seven had ruptured corpus luteum cysts of the right ovary. The age of the patients ranged from 13 to 36 years, averaging 23. The leukocyte count varied from 5,400 to 19,700 cells per cu mm and the average was 10,400. The duration of stay in hospital varied from 3 to 14 days, the average being 6 days. In one patient ileus developed postoperatively. An antibiotic, penicillin, was used in three of the cases postoperatively.

Mesenteric Lymphadenitis

Thirty patients operated upon for acute appendicitis were found at laparotomy to have mesenteric lymphadenitis. The age range of these patients was from 4 to 32 years and the average was 13 years. The ratio of males to females was 0.50 to 1. The leukocyte count averaged 12,600 cells per cu mm, varying from 5,600 to 32,100. Stay in hospital ranged from 2 to 6 days, averaging 3 days. Two patients had postoperative complications (hemophilus influenza meningitis, coryza). Antibiotics, all anti-coccal in action, were used in four cases.

Normal Abdomen

In 34 cases in which abdominal exploration was carried out, no cause could be ascertained for the symptoms that had led to a diagnosis of appendi-

citis. The ages of the patients ranged from 5 to 51 years, averaging 35. The ratio of males to females was 0.36 to 1. Leukocytes numbered from 5,400 to 20,100 per cu mm (average, 9,700). Time in hospital averaged four days (range, 2 to 9 days). Post-operative complications developed in four cases—thrombophlebitis, pneumothorax, ileus and measles. Antibiotics were used in six of the cases, broad spectrum agents in three and anti-coccal varieties in three.

Miscellaneous

Three patients with inflammatory disease of the large intestine were mistakenly operated upon for acute appendicitis. One of them, a 46-year-old woman found to have cecal diverticulitis, was treated with demethylchlortetracycline (Declomycin®) and succinylsulfathiazole (Sulfasuxidine®) and left the hospital after seven days. A 36-year-old man with sigmoid diverticulitis and pelvic peritonitis who was treated postoperatively with oxytetracycline (Terramycin®) colistimethate (Colymycin®) and Sulfasuxidine® also was discharged after seven days in the hospital. The third patient, a 45-year-old man with sigmoid diverticulitis, left the hospital after three days without having had antibiotics after operation.

Discussion

Enough patients were operated on with a diagnosis of acute appendicitis in the period of two and a half years of this study to permit some conclusions to be drawn regarding the handling of cases of this type by the hospital staff.

The erroneous diagnosis rate of 24 per cent was only slightly higher than that reported from major medical centers.^{1,2} In 4,500 cases at the Massachusetts General Hospital, there was an 18 per cent diagnostic error.¹ In the series reported by Boles, Ireton and Clatworthy,² the diagnostic error rate was 14 per cent in children 16 years of age and younger. The diagnosis was wrong in 42 per cent of 2,322 operations for acute appendicitis performed in a community hospital, as reported by Ross, Zarem and Morgan.⁴

The incidence of perforation in the present series was 10 per cent as compared with 18 per cent in

TABLE 1.—Postoperative Complications Associated with Acute Appendicitis

Complication	Incidence
Ileus	9
Wound infection	6
Pharyngitis, acute	7
Subphrenic abscess	2
Peritonitis	2
Pelvic abscess	1
Wound dehiscence	1
Atelectasis	1
Urinary retention.....	1
Fecal fistula	1
Diarrhea	1
Cystitis, acute	1

TABLE 2.—Postoperative Complications Associated with Perforated Appendix

Complication	Incidence
Ileus	4
Pharyngitis, acute	3
Wound infection	3
Peritonitis	1
Fecal fistula	1
Wound dehiscence	1
Pelvic abscess	1

the Massachusetts General Hospital series.¹ Mesenteric lymphadenitis was the cause of the symptoms in 9.5 per cent of the cases and in 10.8 per cent no abnormality was found at operation, compared with 4.6 and 2.8 per cent respectively in the Massachusetts General series.

Unfortunately nothing was observed that would help in distinguishing clinically between cases in which perforation had taken place and those in which it had not. Although acute non-perforated appendicitis is more common in males than females, while in perforated appendicitis the sex incidence is reversed, the difference is not great enough to be of help in "statistical diagnosis." The average age of patients with perforation was nine years greater than that of the overall group; however, perforation occurred in both the youngest and the oldest patients in the series.

In the present study there was no significant difference in leukocyte count between patients who had perforation and those who had not—a fact at variance with corresponding data in most reported series.

The average stay in hospital was more than twice as long for patients with perforation as for the group as a whole, a reflection of the difference in morbidity rates, 33 per cent and 10 per cent respectively. In the series reported by Boles and associates,² the morbidity rate was six times higher for those with perforation than in the non-perforated group, with a duration of hospital stay of 11.7 days in the perforated group as compared with 4.3 days in the non-perforated group.

In this series, antibiotics were given after operation in 24 per cent of the total group as compared with 78 per cent in the perforated group. With respect to the use of antibiotics in a high proportion of cases in which perforation had occurred, it is noteworthy that there were no deaths in the series.

As there are no diagnostic criteria to help in determining before operation whether perforation has occurred, then in light of the statement by Brown and coworkers¹ that patients with acute appendicitis are seen no earlier than they were 23 years ago, it appears that at present the only way to decrease perforation is to operate sooner after they do come to medical attention.

In the present series the average age, the physical

symptoms and the leukocyte counts of women with disease of the reproductive organs who were mistakenly operated on in the belief that they had appendicitis, did not differ greatly from these factors in women who did have acute appendicitis. Guardet and Enquist³ reviewed the cases of 27 women with acute pelvic inflammatory disease mistakenly operated on for acute appendicitis and could find no constant difference in clinical features sufficient to justify withholding operation in some cases.

Comparison of symptoms and other data on mesenteric lymphadenitis with similar factors as related to acute appendicitis may be somewhat more helpful. Patients with mesenteric lymphadenitis averaged nine years younger than those who had appendicitis and the age range was much narrower—4 to 32 years for one group against 4 to 87 years for the other. Whereas the male to female ratio in acute appendicitis was 1.85 to 1, in mesenteric lymphadenitis it was 0.50 to 1, and the average number of leukocytes was 12,600 per cu mm as compared with 14,300. Hence in young females with only minimally elevated leukocyte count, mesenteric lymphadenitis should be strongly considered in the differential diagnosis of acute pain in the right lower quadrant of the abdomen.

The average age of patients in whom no abdominal abnormality was found at laparotomy, was 13 years greater than that of patients with acute appendicitis, and in this group the ratio of male to female patients was 1:3. The average leukocyte count in such patients was within normal range although it varied from 5,400 to 20,100 cells per cu mm. Unfortunately the physical findings were the same as for patients who had acute appendicitis.

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The Role of the Primary Physician in

Mental Retardation

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■ *Practicing physicians are called upon with increased frequency for the diagnosis and treatment of the mentally retarded. The syndrome is a complex health, education, social and vocational problem. Classification is generally based on the degree of impairment, the causation and the symptomatology. There are two major types of mental retardation. In one, the impairment is more severe and concomitant physical signs are frequent. In the other, the impairment is mild and somatic signs are absent.*

Diagnosis calls for careful developmental history, examination and a judicious use of laboratory and other tests. Early diagnosis and the establishment of cause have important therapeutic and preventive implications. Counseling of parents is an essential part of clinical work.

MENTAL RETARDATION, described by a variety of terms, has always been a major problem of society. The first institution for the mentally retarded was established in our country more than a century ago.⁴ During succeeding decades a pattern was established. The states maintained residential settings for the special care of the retarded. Education and training under medical auspices were the first techniques used. An era of hope and optimism was followed by disappointments. A general philosophy evolved in which the emphasis was on long-term

custody. Eugenic approaches also came into vogue. Because institutions were at some distance from population centers, it was easy for the public to forget the retarded—out of sight meant out of mind.

Around the turn of the century, psychometric tests were devised in France to identify those school children who could not profit from ordinary classroom procedures. The results called attention to the magnitude of the problem of retardation. Concurrently in England, social inadequacy became the main criterion for identifying the “feeble-minded.” In America, intellectual impairment with inadequate social adaptation evolved as the combined criteria for the diagnosis of retardation.⁷

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In recent years, major developments have occurred. Special classes were established in public schools and retarded children no longer had to enter residential settings solely for the purpose of education. Parents of the retarded organized into action groups, demanding local services for the general and mental health care, education, training, recreation and vocational adjustment of their children. Professionals began to recognize the challenges offered in the field of retardation. Public concern culminated in the appointment of a panel by the late President John F. Kennedy which submitted its report in 1962.¹¹ The President's historic message⁸ of 1963 was followed by several legislative enactments.

The American Medical Association, recognizing the importance of the problem, asked its Council on Mental Health and its Committee on Maternal and Child Care to arrange a conference of experts. The purpose was to formulate practical guidelines for increasing the interest and the effectiveness of the practicing physician in this field. A successful conference was held in Chicago in April, 1964.¹

Today, although some 200,000 mentally retarded persons are in 24-hour residential settings, the overwhelming number of mentally retarded children and adults live in their home communities. Institutional philosophy is also changing. The notion of lifelong housing is disappearing, and the goal is to alter the intellectual or social performance of the retarded person, at least to the extent that he can be returned to community life.¹²

As a result of current trends, practicing physicians are called upon with increasing frequency to care for mentally retarded patients. It is timely therefore to discuss the primary physician's role in the diagnosis, treatment and prevention of the syndrome. *Primary physician*, a term used at the AMA Conference, refers to the practitioner who first becomes involved in professional activities with the retarded patient and his family. This physician may be a specialist from one of a number of fields, or he may be the generalist who attends the family.

A general description of the syndrome will be followed by some implications for office practice and a brief review of recent research findings.

The Syndrome

Mental retardation is a syndrome present at birth or having its onset during childhood. It is characterized by significant impairments both in intellectual functioning and in social adaptability. Retardation is a major and complex health, education, social and vocational problem. Many aspects of the condition are not primarily medical in nature. Physicians, even as a group, cannot be ex-

pected to care for all the needs that confront the patient, his family and society. Teachers, social workers, rehabilitation and vocational counselors, ministers and many others have significant roles to play. Yet in most instances a physician will be consulted when problems of diagnosis and treatment arise, whether they occur soon after birth or later, say, upon failure in school. The physician will also be called upon to help in the resolution of the emotional problems that face the parents. His advice will be repeatedly sought in the life planning for the retarded person. The happiness of the retarded child and his family depend upon the knowledge and skill of the physician working in collaboration with other professionals.

The magnitude of the problem of retardation is probably best expressed by the fact that 3 per cent of the newborn will be diagnosed at some time during their life as having this syndrome. As yet, however, there is no exact information available on the prevalence of the condition. For instance, we do not know how many mentally retarded persons there are in a community of 100,000 at a given moment. Diagnostic difficulties hamper such studies. Intelligence is relatively easy to measure. It can be estimated, with considerable certainty, that approximately 3 per cent of the population has an intelligence quotient below 70—the usual cutoff point used in clinical practice.³ However, impairment in adaptation, a characteristic much harder to quantify, is also required for the diagnosis. In daily life, diagnostic suspicion usually arises from observed impairment in adaptation, and intelligence tests then are used for diagnostic verification.

Present evidence indicates that prevalence varies with age. There is only one phase in life, the school years, during which general adaptation and measured intelligence correlate to a high degree. In most cases retardation, particularly if impairment is mild, therefore becomes clinically visible only upon the child's entrance into school, and he then becomes asymptomatic again upon reaching adulthood. In the more severe groups, a substantial depletion results from increased mortality. The total number diagnosed as mentally retarded at a given time is, in all probability, closer to 1 per cent than to 3 per cent of the population.

Mental retardation is usually classified by the degree of intellectual impairment, the causation and the symptoms.⁷ In general, males predominate among the retarded. There are four classes of severity: profound, severe, moderate and mild. The greater the severity, the fewer the number of persons in the class. Once in a thousand a child is born whose intelligence quotient (IQ) will not exceed 20; four times that number will have an IQ between 20 and 50; and 25 of 1,000 will later

in life score between the IQ points of 50 and 70.^{3,10} The most severely afflicted cannot survive without constant protection. Those who have an IQ between 30 and 50 and are described by educators as "trainable," can learn simple tasks and perform reasonably well in sheltered work opportunity settings. Their intellectual difficulties become manifest when they are called upon to use symbols needed in reading, writing or arithmetic. Those with mild retardation, known as the "educable," can acquire scholastic competence to the fourth grade level, live quite independently as adults and work in occupations not requiring abstract thinking.

Over a hundred causes of retardation have been identified, yet in most instances no specific etiologic diagnosis can be made. The more severe the retardation, the greater the probability for finding concomitant somatic aberrations, if not a specific cause.¹⁹ Etiologic certainty decreases as one moves from the somatically involved to the physically normal group. The former includes mental retardation associated with prenatal and postnatal infections of the brain; perinatal and postnatal traumata; the sequelae of neurotropic poisons; mongolism and other chromosomal aberrations, a number of genetically determined conditions, including the inborn errors of metabolism; certain tumor formations; and many structural anomalies of the central nervous system.

In the physically normal group, such descriptive terms as "undifferentiated," "cultural-familial" and "psychogenic," are used for diagnosis. Impaired mental functioning in persons of this order is related to inadequate or poor intellectual stimulation during infancy or to deviant mother-child relationship. Normal mental functioning requires the exercise of mental capacities from the earliest days. Abstract thinking, an essential part of human intelligence, calls for complex verbal capacity. When an infant is not given an opportunity to explore and to experiment, or to acquire a sufficiently diversified vocabulary, retardation is apt to follow. Although the exact mode of action of these complex environmental forces is not yet fully known, their general etiologic importance seems to be proven.

Symptomatically, there is a great variability among the retarded. Some—for instance, mongoloid patients—show signs which are pathognomonic for retardation. In others—phenylketonuric persons, for example—characteristic laboratory findings can be noted. Although physical symptoms are frequently associated with retardation, in the great majority of cases there are no detectable somatic aberrations. All the retarded are vulnerable to emotional disturbances.

From the viewpoint of clinical practice, the

many subtypes of mental retardation may be divided into two major groups. The smaller one is characterized by profound to moderate degrees of impairment with a high frequency of concomitant physical signs and superimposed handicaps. Often the cause can be ascertained. Morbidity and mortality are higher than in the average population. Diagnosis is made usually early in life and the condition remains reasonably stable. The social and economic background of these patients equates with that of the general population.

In the remaining and much larger group retardation is usually of mild degree. Causation in this group is more uncertain and morbidity and mortality are essentially the same as for the general population. There are no physical signs and diagnosis is usually made during school years. In this category the economically and socially underprivileged classes are over-represented. Upon reaching adult age, most members of the group disappear into the general population.^{13,15}

It should be reemphasized that although approximately 3 per cent of the newborn will be diagnosed as mentally retarded sometime during their life, many of them do not remain so identified throughout their life span. Symptoms, causation, and the degree of impairment vary. The retarded, therefore, represent a highly heterogeneous population about whom few generalizations can be made.

Implications for Office Practice

More detailed discussion of particular syndromes, diagnostic tests or treatment methods are available elsewhere.²⁰ Comments here will be restricted to general principles.

The first clinical issue concerns diagnosis. Diagnosis is established at different age levels, depending on the severity of the condition and the presence or absence of concomitant signs. In mongolism, microcephaly, hydrocephaly and in a few other syndromes, the condition can be diagnosed at birth or shortly thereafter. In many infants and children, however, mental retardation is a condition which becomes evident gradually as an increasing delay in development is noted. At times the physician is the first person who notes that something has gone awry with the mental development of the child. He might be alerted to the need for careful observation through a history of relevant genetic information, prenatal infection in the mother, prematurity, difficult labor or events such as replacement transfusion for blood group incompatibility.

A definitive diagnosis might be difficult on one examination. Meticulous developmental observations and the recording of findings are needed if an intermittent review is to assist in early diagnosis.

There is also need for careful testing for such conditions as phenylketonuria or galactosemia, particularly in light of a positive genetic history.

Often it will be the parents or other family members who will first note the developmental delay. They will ask for careful studies upon their visit to the office. Delay in walking, speech or habit training are important bench marks. Poor coordination without specific neurologic findings, simplicity of play, inability to combine words into sentences, or a choice of younger playmates are other important alerting signals.

The mildly retarded will often not come to specific medical attention until entrance into school. Teachers are likely to be the first critical observers. Academic failure, particularly when accompanied by behavior patterns of withdrawal, negativism or aggressiveness are the initial symptoms. The diagnostic suspicion of the teacher is often followed by a psychometric test before the physician is asked to establish a definitive diagnosis with particular attention to causation.

As soon as there is evidence to suspect mental retardation, the diagnostic resources of medicine should be fully utilized. Much can be accomplished in the office of the primary physician and in local facilities. If necessary, however, the patient and his family should be referred to appropriate specialists or to medical centers where a greater variety of technical and interdisciplinary skills is available.

A careful history including genetic information and the collection of developmental data is the first step in diagnosis. It should be followed by a detailed physical examination. Laboratory tests including x-ray studies may help in the diagnosis of certain conditions. The value of electroencephalography increases with the child's age. Gross developmental testing performed in the office is of substantial help. Even when the findings do not confirm the diagnosis at a specified time, they will provide baseline information for future studies—whether these will be done locally, or in the office of a consultant or in a diagnostic center.

A complete diagnostic work-up, particularly in major medical centers, will usually include several other procedures. The aim of the work-up is to ascertain and to measure the developmental lag of the child; to identify the presence or absence of sensory deficits; to determine special areas of intellectual impairment; and to focus on personality components of strength upon which remedial work can be based. Psychometric and personality tests suitable for the patient's chronological and mental age, detailed developmental assessment and more specialized laboratory and radiological techniques will be utilized. Testing of the sensory organs is of particular importance because deficits in them can

produce serious symptoms of retardation. Correction at times is followed by rapid personality development. Speech and other communication handicaps are the most common secondary symptoms of retardation.¹⁸ Assessing and correcting them early is therefore of major importance. A number of superimposed and correctable physical or emotional symptoms might be identified and treatment of them can result in improvement in the child's functioning. It is equally important to ascertain the child's educational development in order to recommend proper school placement. In the adolescent or in the adult, a similar assessment of vocational skills is also essential to help in intelligent long-term planning. Diagnostic work-up of this kind requires a team of several medical specialists such as pediatricians, psychiatrists, neurologists and orthopedists. In addition, close collaboration with other professionals—psychologists, social workers, teachers, rehabilitational and vocational counselors—is needed.

Even a suspicion of the diagnosis confronts the physician with the problem of communicating the information to the parents. How much to say, when and how, pose a most difficult dilemma.⁵ A definitive diagnosis makes the situation more serious. If members of the family have already noted the delay in development and are seeking confirmation of their own suspicions, the problem of physician-parent communication is somewhat simplified.

Conveying and explaining the diagnosis, alleviating parental reactions and the working through of the implications of mental retardation toward the goal of intelligent long-term planning are among the greatest challenges confronting a physician. The birth of a child whose intelligence is far below parental expectations sets into motion several psychological mechanisms which must be taken into account if the physician is to be helpful to the parents. Parents at times, even when confronted with the obvious, will react with the defense of denial. They will treat the condition as if it did not exist; they will cling to the hope that the physician is wrong; they will initiate a lengthy tour of shopping in search of a negative diagnosis. Each time, their expectations of the child will rise, then be psychologically shattered again. In these circumstances, even a well-intended statement that the child "might" outgrow the condition will be misunderstood. It will meet the present psychological needs of the parents, but in the end the disappointment will be the greater.

Projection—that is, blaming someone else—is another common mechanism used by parents: the condition was caused by an insignificant event during pregnancy; by improper handling of the birth; or by the "background" or a habit of the marital

partner. Part and parcel of this unconscious process is the parents' inability to hear and understand the physician's statements or advice, and later to blame him for having told them too little or having spoken too rudely. Blame at times is projected onto a larger group of people: onto friends, who, because they do not have retarded children, seem to lack understanding; onto society as a whole for not providing for the retarded; onto neighbors seemingly hostile; or onto children for apparent cruelty. There is often some factual basis for the projections, but excessive adherence to these thoughts interferes with intelligent planning.

Feelings of guilt also are complicating phenomena. The parents might believe that they are completely unworthy because they have failed in their biologic role as parents. Feelings of guilt produce hostility directed either inward or toward others. Some parents develop unusual reaction patterns which will result in excessive overprotection of the child or complete rejection of him. The former may produce unnecessary infantilization, the latter unconscious wishes to be rid of the burden.

In this emotional turmoil, the parents become easy prey for unproven, unscientific, pseudo-therapeutic promises. In fact, their search for a negative diagnosis is usually followed by another sequence, this time for a magical therapeutic solution. Unless protected by the family physician, parents may spend the family wealth on quacks.

The primary physician is in a good position to deal with these difficult psychological problems, particularly if he has enjoyed the confidence of the family for a long time. He will have to adjust his approach to the problem in accord with the psychological phase in which he finds the parents. He can start with whatever approach he has found most helpful with the particular parents in the past. At times some bluntness might be helpful, but most often a gradual and slower process will be advisable. It is desirable not to burden only one parent with the diagnosis and leave him with the obligation to tell the other. It is better to advise both jointly of the findings. It is always helpful to listen and to ask guiding questions. Suggesting a comparison between the afflicted child and his siblings or the neighbor children makes it easier for the parents to recognize the differences.

The physician should realize that he himself will react unconsciously to the problems of retardation. He will, at times, wish that he had learned more about the condition because the more he knows the more comfortable he will feel in discussing the syndrome with the parents. He will find it difficult not to pass value judgments between retarded and normal children. He might unconsciously prefer that the parents seek the help of another physician.

Changing physicians, however, only postpones the resolution of the conflicts. The skillful physician will be able to handle these problems, although at times he might well get help through consultation with his psychiatric colleagues, or occasionally even refer the parents for treatment.

Only after the parents gain insight and understanding can they be ready for meaningful long-term planning. At this phase the physician's office again has much to offer. His attitude must convince the parents that he will give the retarded child the same care he would offer to any other patient, and that he will assist them with each new problem that arises. He can provide advance information on the delays in growth and development that will occur. He can suggest simple techniques to make handling of the child easier.

Even in the best of circumstances he will encounter recurring conflicts which accompany certain common critical situations in family life. These periods of crisis include, among many others, the first suspicion; the moment of actual diagnosis; the phase of psychological adjustment; the issues of genetics, particularly in relation to succeeding pregnancies; the loss of the breadwinner's job; family moving; the questions of school entrance; puberty; graduation; vocational adjustment; possible marriage; and, last but not least, the conflict of institutional placement at any age.

In many instances the physician will have specific treatment to offer, a diet for phenylketonuria, for example, or the use of anticonvulsants, muscle relaxants or tranquilizers. At other times, correction of superimposed handicaps or palliative help is the most he can do. Whichever the case, the parents will appreciate his sincere interest and skills.

He can be aided in many phases of his practice by the resources available to him in his own or nearby communities. He should become acquainted with these services and the personnel. He can then work in closer collaboration with them. In addition to the medical help by specialists, hospitals and centers, there is also available a variety of worthwhile non-medical programs.

The public school system is one important resource. In most states it maintains special classes for the educable child of school age—that is, those who have an IQ between 50 and 70. In many communities classes are also available for trainable children, those with an IQ between 30 and 50. In the former classes, emphasis is on academic learning within the child's ability, whereas the latter programs focus on general maturation, self-care and group experience. In private schools, the physician might find a resource for day placement of those patients, including the more severely retarded, who are not admitted to public classes. Private schools

are often maintained—at times jointly—by parents' associations, service clubs and churches.

Local parents' associations are another important source of help.* The usual principal aims of these organizations are public education and campaigning for the establishment of services. Many, however, maintain day classes and sheltered work opportunity settings. Some also operate small residential places and clinics of various types. All offer the parents of retarded children solace through valuable information and the sharing of experiences. Their action programs offer a positive channel for parental energies.

Family service agencies are useful in supplementing the physician's activities through casework techniques. Financial help may be obtained through welfare departments, the Social Security or Veterans' Administration and private charities. Vocational rehabilitation¹⁷ and employment agencies may be utilized for information on their services and on sheltered work opportunity settings, particularly for the moderately retarded. The latter services are usually in short supply, but where available they can add a great deal to the happiness of the patient. Some city or county recreation agencies maintain special programs for the retarded, and churches are beginning to provide services specifically for their needs. Homemaking resources are available only in a few communities but public health nurses can be of major assistance in this respect. Baby sitters specially trained for the care of retarded persons are at times available through the local parents' associations, or through a cooperative arrangement.

When placement outside the home is indicated, information on foster placement can be obtained from the local welfare department or from the state institution serving the retarded. Although in increasing numbers private residential settings are being established, the major residential resource is the public institution. It is desirable that the physician visit the institution.²¹ If he has seen the program and knows the staff, he is in a better position to advise the parents concerning placement and to help them through the severe emotional turmoil which usually accompanies separation.

Unfortunately, all these resources are available only in very few communities. Even fewer cities have a centralized referral resource which could provide physicians and parents with direct and speedy information. The primary physician might have to participate in community action to initiate some of the services.⁶ In this capacity he will be acting as a professional citizen leader.

*Information concerning local chapters is available from the National Association for Retarded Children, Inc., 420 Lexington Avenue, New York, New York 10017.

Research Developments

Research in retardation is rapidly gaining momentum.^{14,15,16} New findings are appearing almost daily. Our understanding of normal and deviant brain functioning, from the viewpoints of biochemistry, genetics, neurophysiology, epidemiology and the behavioral and educational sciences, is particularly significant. Three brief examples should suffice.

Since the original discoveries of the inborn errors of metabolism, a number of similar conditions have been found, many of which are associated with mental retardation. New entities are being identified at the rate of more than one per year. Most of these conditions are inherited as autosomal recessive characteristics. Some, like phenylketonuria, lend themselves to dietary treatment. Breakthroughs are occurring in the identification of the carrier state with obvious genetic implications. It can be expected that more and more conditions will be found to be preventable and that entirely new treatment methods will be developed. Enzymes suitable for oral or parenteral administration will become available. These, or metabolic blocking agents interfering with the action of toxic substances, will probably replace cumbersome dietary treatments.

Techniques suitable for chromosome studies opened new vistas in the understanding of several types of mental retardation—mongolism, for example. Of greater importance is the new knowledge that some types of mongolism are transmitted by parent carriers, with a high probability of recurrence. Chromosome typing can identify the carrier. The methods used for this should soon become available in clinical practice. Refinements of techniques should rapidly enrich our understanding about the roles of minor chromosomal aberrations, translocations and mosaicisms in genetic transmission.

There is evidence that individuals with major impairments in intellect can acquire skills for useful production.² Early intellectual stimulation and special teaching of the preschool child have proven helpful in later learning.⁹ Practical techniques will be developed which will significantly ameliorate the intellectual impairment of the culturally underprivileged and the mildly organically damaged child.

The future is full of promise. More of the retarded will remain in their community. New findings will improve our abilities to care for them; but the health, happiness and success of the retarded child and the psychological adjustment of his family will always depend on the devotion, knowledge and skills of the primary physician.

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Suicide in San Francisco:

Reported and Unreported

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■ *Reported suicide in San Francisco was investigated for the period between July 1956, through June 1964. During that time 1664 persons killed themselves, according to the Coroner's records. The method most frequently used was oral ingestion of toxic substances, which significantly deviates from national statistics, shooting being the method most frequently reported. The explanation for this deviation is probably the more valid mortality statistics of San Francisco, and from this it may be inferred that unreported suicide may be largely suicide by ingestion, unrecognized because of lack of postmortem studies.*

Unreported suicide is further classified into intentioned (masked, suppressed and undiscovered) and subintentioned (oral-dependent and aggressive).

Despite the fact that suicide has been a leading cause of death, the public and the medical profession are largely apathetic. An attempt is being made by Suicide Prevention of San Francisco, Inc. to develop a clinical and research facility for the study and treatment of suicidal persons.

MAN HAS BEEN KILLING HIMSELF for centuries and in recent times neither the psychodynamic insights of Freud nor the sociologic contributions of Durkheim have yet enabled us to stem the tide of this self-destruction. Under present conditions, of every thousand Caucasian males born today, 15 will eventually be known to commit suicide.⁵ However, overt suicide as manifested by reported suicide rates is only part of the total mortality resulting from man's self-destructive tendencies. The purpose of this paper is to outline the suicide problem in toto as it is seen to exist in San Francisco. A suggested classification divides suicide into two major classes—reported and unreported:

An Empirical Classification of Suicide

- I. Reported
- II. Unreported
 - A. Intentioned
 - 1. Masked
 - 2. Suppressed
 - 3. Undiscovered
 - B. Subintentioned
 - 1. Oral-dependent
 - a. Alcoholism
 - b. Drug addiction
 - c. Heavy smoking
 - d. Pathogenic eating
 - 2. Aggressive
 - a. Accidents
 - b. Medical insurgency

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Reported Suicide

Few studies of suicide in the San Francisco area have appeared in the literature. In an unpublished doctoral dissertation, Wendling¹⁶ reported on a study of the problem from 1938-42 and 1948-52 in both San Francisco and the East Bay. Egger,⁶ in another unpublished doctoral dissertation, reported on the period between 1939 and 1950 in San Francisco. One of the few published reports is by Motto and Greene¹² who studied both attempted suicide and suicide in San Francisco in 1956-57. Lane⁸ did sociologic surveys on the incidence of suicide in census tracts of San Francisco. Kirschenbaum and Handelman⁷ surveyed community resources for prevention available in the San Francisco area. Bruyn and Seiden² studied suicide by students on the University of California campus at Berkeley in the period 1952-61.

In studying reported suicide in San Francisco, we were concerned with the following questions:

1. How do San Francisco suicides compare with national statistics with regard to sex, age, race and marital status?

2. Are there differences in methods used to commit suicide in San Francisco compared with methods generally reported throughout the country?

To answer these questions, data were obtained from the records of the San Francisco Coroner's office for the period between July 1956 through June 1964, inclusive.

Sex

During the period studied, there were 1,110 men and 554 women reported as suicides by the San Francisco Coroner's office. This ratio is lower than the usual three-to-one sex ratio of men to women generally reported.⁵ A possible explanation for this will be discussed under "Method."

TABLE 1.—Suicide by Age Range, San Francisco 1956-64

Age in Years	Year Ended June 30								Total	Per Cent
	1957	1958	1959	1960	1961	1962	1963	1964		
Below 20	3	1	1	2	3	5	4	3	22	1.3
20-29	11	14	16	19	12	26	12	26	136	8.2
30-39	28	31	24	28	30	36	41	25	243	14.6
40-49	38	45	37	32	46	41	44	42	325	19.5
50-59	53	39	54	56	48	40	49	45	384	23.1
60-69	44	34	28	33	45	41	39	33	297	17.3
Above 70	31	32	29	32	38	23	31	41	257	15.4
Total	208	196	189	202	222	212	220	215	1,664	99.4

TABLE 2.—Suicide by Racial Distribution, San Francisco, 1956-64

Race	Year Ended June 30								Total	Per Cent
	1957	1958	1959	1960	1961	1962	1963	1964		
Caucasian	189	183	179	190	207	199	204	202	1,553	93.3
Oriental	16	11	10	9	11	12	15	11	95	5.7
Negro	3	2	0	3	4	1	1	2	16	0.9
Total	208	196	189	202	222	212	220	215	1,664	99.9

Age

In this series the age range of persons who killed themselves ranged from below 20 to above 70 with the median range in the 50's (Table 1). This median is higher than that generally reported, probably due to the fact that the population of San Francisco is older than the national median. Less than 2 per cent of the suicides in this series occurred below the age of 20. These data support the generalization that the incidence of suicide increases proportionally with age.

Race

Racial distribution (Table 2) indicates that the higher incidence of suicide among Caucasians as reported elsewhere is likewise found in San Francisco, where non-whites, constituting more than 20 per cent of the population, make up less than 7 per cent of the total suicides. The discrepancy is accounted for in Negroes—more than 11 per cent of the population, less than 1 per cent of the total suicides.

Marital Status

The highest proportion of suicides according to marital status was in persons listed as "married" (Table 3). However, this category includes those who were legally married but not living with their spouses at the time of death. It is also probable that the "unknown" group contains proportionally more separated, divorced and widowed persons, who have been reported to have the highest suicide rates. Further analysis of the data is necessary to determine whether these statistics support the findings that domestic anomy contributes to high suicide rates.

	Status	Year Ended June 30							Total	Per Cent
		1957	1958	1959	1960	1961	1962	1963		
TABLE 3.—Suicide by Marital Status, San Francisco 1956-64	Married	101	85	88	94	111	94	87	756	45.6
	Single	35	25	37	40	46	57	59	358	21.5
	Divorced	30	20	21	31	31	32	27	220	13.2
	Widowed	23	33	24	24	25	21	39	218	13.1
	Unknown	19	33	19	13	9	8	8	110	6.6
	Total	208	196	189	202	222	212	220	1,664	100.0

	Method	Year Ended June 30							Total	Per Cent
		1957	1958	1959	1960	1961	1962	1963		
TABLE 4.—Suicide by Method, San Francisco, 1956-64	Ingestion	66	66	58	58	70	64	82	549	33
	Shooting	38	43	32	49	51	55	43	346	21
	Jumping	39	30	31	38	33	29	33	266	16
	Hanging	35	31	40	28	31	23	29	242	14
	Carbon monoxide	12	12	8	10	10	11	14	89	5
	Miscellaneous..	4	5	9	5	5	13	8	58	3
	Drowning	11	1	2	4	9	4	5	41	2
	Plastic bags....	0	0	1	8	10	5	5	37	2
	Cutting	3	8	8	2	3	8	1	36	2
	Total	208	196	189	202	222	212	220	1,664	99

Method

Ingestion was found to be the most frequent method used (Table 4), accounting for 33 per cent of all suicides. This finding is in significant contrast to national figures which have consistently shown shooting to be the leading means.⁵ The explanation for this deviation may be the high autopsy rate of the San Francisco coroner's office, which does autopsy in 99 per cent of its cases and does toxicologic studies on 48 per cent of them, compared with corresponding rates of 48 per cent and 31 per cent in Los Angeles.⁴ In view of the more complete studies in San Francisco, it may well be that ingestion is indeed the most frequent mode of suicide throughout the country and that the under-reporting especially of masked suicide (discussed under "Unreported Suicide") estimated to be from 22 to 33 per cent,³ may largely occur in cases of suicide by ingestion. These cases may often be impossible to detect without postmortem toxicologic studies. Since ingestion is more frequently used by women than men, the lower sex ratio of San Francisco's suicides, previously mentioned, may be more valid than those generally reported. It is also of interest to note that in suicide by ingestion barbiturates were the substances ingested in almost 90 per cent of cases.

Another significant deviation from the national pattern is that jumping is the third most frequent method of suicide in San Francisco in contrast to the United States as a whole where jumping ranks further down the list.⁵ At first blush one may attribute this to the Golden Gate Bridge which has attained a world reputation as a site for suicide.

Analysis of the data (Table 5) shows that jumping from the Golden Gate Bridge has accounted for an average of about one fourth of all suicides by jumping (Column E). Suicide by jumping has maintained a consistent ratio between 15 and 20 per cent of all suicides in San Francisco (Column C). In 1964, when the number of known suicides from Golden Gate Bridge approximately doubled (Column D), there was a decrease in the number of suicides by jumping from other places (Column G), so that the percentage of suicide by jumping in 1964 was essentially unchanged from previous years (Column C). This data suggests that the erection of a physical barrier on the Golden Gate Bridge would not effectively alter the pattern except perhaps to make jumpers turn to other sites, thus eliminating the possibility of developing more positive preventive measures now afforded by centralization at the bridge.

Unreported Suicide

Since by its very nature there is little data on unreported suicide, we are here moving into an area of speculation and guesswork in regard to numbers. However, there is reason to suspect that the incidence of unreported suicide is of a magnitude several times that of reported suicide, which raises an already serious problem to even greater importance. The terms *intentioned* and *subintentioned* (mentioned earlier in this discussion) are derived from Shneidman's classification of death.¹⁴

Intentioned. This category refers to death precipitated by a willful self-destructive act but not reported as a suicide. Three types are listed:

TABLE 5.—Suicides from Golden Gate Bridge as related to total suicides by jumping, San Francisco, 1956-64

Year Ended June 30	A	B	C	D From Golden Gate Bridge	E	F	G	H B-D	I B-D
	Total	By Jump	B:A		D/B	D/A	B-D	A	B
1957	208	39	.19	6	.15	.03	33	.16	.35
1958	196	30	.15	6	.20	.03	24	.12	.80
1959	189	31	.17	9	.27	.05	22	.12	.73
1960	202	38	.20	6	.15	.03	32	.17	.85
1961	222	33	.15	18	.24	.04	25	.11	.76
1962	212	29	.14	7	.24	.03	22	.11	.76
1963	220	33	.15	11	.33	.05	22	.10	.67
1964	215	33	.15	18	.55	.08	15	.07	.45
Total	1,664	266		71			195		
Mean ..	208	33	.16	8.9	.27	.04	24	.12	.73

KEY TO COLUMN HEADINGS

A—Total suicides for the fiscal year.

B—Total suicides by jumping for the fiscal year.

(Column B to Column A)

C—Ratio of suicides by jumping to total suicides.

D—Known suicides from the Golden Gate Bridge.

E—Ratio of suicides from Bridge to suicides from jumping.

F—Ratio of suicides from Bridge to total suicides.

G—Suicides by jumping from all places other than the Bridge.

H—Ratio of suicides by jumping from all places other than the Bridge to total suicides.

I—Ratio of suicides by jumping from all places other than the Bridge to suicides by jumping.

1. *Masked* refers to those instances in which an individual disguises his own suicide to look like an accident or a natural form of death. The automobile may play an important role in this regard.⁹ In 1964 accidents were listed as the fourth leading cause of death in San Francisco, accounting for 529 fatalities.¹³ How many of these were masked suicides cannot be estimated accurately at this time, but a grim aspect here is the loss of lives of non-suicidal persons involved in these "accidents." As to suicide masked as natural death, it is probable, as previously mentioned, that suicide by ingestion makes up a significant number of these, especially in areas where few autopsies are done.

2. *Suppressed* refers to known suicides which are not reported as such because of the social stigma in our society concerning suicide.¹⁵ An estimate of the numbers involved here might be obtained from a candid survey of family physicians to determine how many times a suicide has not been reported as such as a result of pressure exerted by family or friends of the deceased.

3. *Undiscovered* includes those who kill themselves but are never found. One possible source of undiscovered suicide in San Francisco is the Golden Gate Bridge. On November 9, 1964, the 276th known person leaped to his death from this site. The actual number of suicides from the bridge will never be known but may be several times the known number since it is quite possible for persons to jump unobserved and for tides to wash the bodies out to sea, rendering them unrecoverable. In the same vein, death by drowning may be an important factor in undiscovered suicide. Another possibility is wandering off into uninhabited areas

to die of starvation or exposure. An estimate of the number of undiscovered suicides may possibly be calculated by studying missing persons records.

Subintentioned. This category includes instances in which the individual plays an indirect or unconscious role which leads to his own death. Menninger's concepts of chronic and organic suicides are roughly comparable.¹⁰ The two subdivisions of subintentioned suicide are oral-dependent and aggressive. *Oral-dependent* refers to conditions in which self-destructive tendencies are manifested by behavior patterns which prominently gratify oral needs. The four examples given are alcoholism, drug addiction, heavy smoking and pathogenic eating. *Aggressive* refers to situations in which the self-destructive tendencies are manifested by behavior patterns which lead to death by accident or medical insurgency. Medical insurgency is the situation in which failure to heed medical advice results in death. The accidents under this category are not consciously planned as are those in masked suicides.

Implications

During the eight-year period studied, reported suicide was among the leading causes of death in San Francisco, taking the lives of 1,664 people. The toll from unreported suicide is probably several times this number. Not dealt with in this study but even more extensive is the morbidity due to unsuccessful suicide attempts, the prevalence of which has been reported to be almost 4 per cent of the general urban population.¹¹ Considering the magnitude of the suicide problem, it is surprising how little has been done by the San Francisco commu-

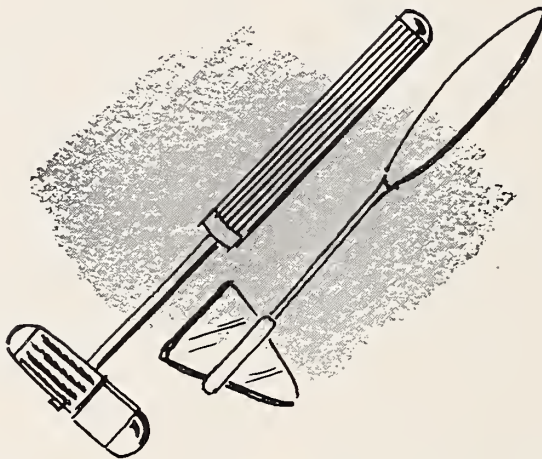
nity with regard to research and prophylaxis. Medicine in general—and psychiatry and public health in particular, for it would seem their interest should be keenest—have largely ignored this area, as exemplified by the content of this very journal wherein the last published article on suicide was in 1954.¹

Perhaps this apathy is due to the feeling that suicide is the individual's own business and that he should be allowed to die if he wishes. However, some positive efforts have been made since 1962 when Bernard Mayes, using the pseudonym "Bruce," organized a telephone answering service for suicidal persons. In 1964 the Suicide Prevention of San Francisco, Inc. was organized to address itself to the suicide problem in the San Francisco area. The goals of this organization include the establishment of a research and clinical facility for the study and treatment of suicidal persons.

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Pediatric Virology

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■ *Pediatric virology is not an isolated discipline. Rather, the syndromes associated with viral infection are modified by the unique characteristics of infancy and childhood. Fortunately for the pediatrician, and certainly for children, viral infections in childhood are rarely fatal, and are almost never serious. Future efforts of the pediatrician and virologist should be directed toward increased fetal salvage as with rubella and the prevention of severe, viral lower respiratory tract disease.*

*"Christopher Robin
Had wheezles
And sneezles . . ."*

FROM "SNEEZLES" BY A. A. MILNE¹⁴

SO BEGINS Mr. Milne's delightful chronicle of a case of mild respiratory infection in a child. In his own inimitable way, Mr. Milne discusses the differential diagnosis, prognosis and treatment for the most common type of disease known to man. He approaches the subject in an appropriately light-hearted vein, for viral disease, and specifically viral respiratory disease in childhood, is usually not a serious malady. Although Mr. Milne did not plan these lines as an introduction to a tome on pediatric virology, they are appropriate for that purpose. Viral respiratory disease is usually the first disease experienced by the newborn infant, and as such it deserves first consideration in the discussions that follow.

Before proceeding, however, it should be emphasized that pediatric virology is not an isolated discipline, for there are few viral infections that are peculiar to pediatrics. Those agents important in pediatrics and the syndromes associated with them as modified by the unique characteristics of in-

fancy and childhood will be stressed. Further, this review will be limited to viral disease as it appears in the Northwest temperate regions of the world, as the global ecology of human viruses is quite diverse.

Respiratory Disease of Viral Etiology

Infection with the respiratory viruses is characterized by a heterogeneity of expression varying from the subclinical and mild upper respiratory infection (URI) to fatal pneumonia. As the clinical syndromes produced by these agents overlap greatly, Table 1 is provided to avoid unnecessary repetition.

Influenza

The influenza viruses are perhaps the best known of the respiroviruses responsible for respiratory disease in man. They are divided into three major groups designated types A, B and C, with a number of sub-types. Classically, influenza occurs in either wide-spread or local epidemics which peak in about three to four weeks and then wane. Sporadic cases also occur, although this epidemiological pattern has not been studied extensively.²⁸ Epidemics occur when one of two elements are present: (1) When "herd" immunity falls below a critical level, agents previously endemic in that same population, or their close antigenic relatives, can cause disease of epidemic proportions. This epidemiological pattern was observed in the years following the appearance of A-2 (Asian) virus in 1957. (2) If a major antigenic shift occurs, pandemics follow due to low levels or

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absence of antibody in most of the world population, as was the case in 1957 when A-2 influenza first appeared. The antigenic shifts of influenza virus since 1934 can be seen in Table 2.

Epidemics of type A influenza occur every two to three years while type B influenza epidemics have a four to five year, but less predictable, periodicity. Disease produced by the type C virus is sporadic, rarely reaching epidemic proportions.

The clinical spectrum of illness produced by the influenza viruses is delineated in Table 1. An incubation period of one and a half to two days is char-

acteristic—this followed by sudden onset of symptoms, whose expression is modified by age. The older child may have the clinical syndrome of chills, fever, myalgia, headache and nonproductive cough, but the younger child or infant, because of a limited vocabulary, may first come to medical attention merely with nonproductive cough and fever or simply fever of unknown origin. Vomiting or diarrhea should be looked upon as nonspecific reactions of the child to infection and not as a result of viral invasion of enteric mucosa. The term "intestinal flu," which is probably derived from this reaction, has been used to describe nonbacterial diarrhea of any type. It should be eschewed. Barring complications, influenza lasts from three to four days, and after a short convalescence the child is usually ready to resume normal activities. Infection with the influenza viruses is probably subclinical in one-third of all cases; and secondary bacterial infection, when it does occur, usually is seen in children with chronic pulmonary or cardiac disease.

Diagnosis. As influenza is usually epidemic, diagnosis can most often be made clinically. Although usually unnecessary in the individual case, laboratory confirmation has important prognostic and epidemiological implications. The cooperation of the clinician and local public health authorities in establishing the cause of respiratory disease at the outset of an epidemic is invaluable, and adequate liaison between the two is characteristic of most communities. A guide to the intelligent use of the viral diagnostic laboratory is presented in Table 3.

Treatment and prophylaxis. Treatment is entirely symptomatic in uncomplicated cases. For secondary bacterial infections, appropriate antibiotic drugs should be used.

Vaccine. When properly constituted, influenza vaccines may be expected to provide 75 to 90 per cent protection. Exceptions to this occur with major antigenic shifts. For maximum effectiveness, the vaccine should contain the strain currently responsible for disease in the community or one closely related to it. For specific immunization procedures and recommendations, the reader is referred to the report of the advisory committee on immunization practice of the U.S. Public Health Service.³⁰ In general, immunization is not recommended for a healthy child, but it should be considered for children with chronic pulmonary and cardiac disease.

Adenoviruses

The first member of the adenovirus group was isolated in 1953 from normal adenoid tissue.⁶⁵ First designated APC, ARD or RI viruses, these agents now make up a group of 28 different serotypes. Although they are responsible for predictable epidemics of acute respiratory disease in military recruits, they

TABLE 1.—*Respiratory Disease of Viral Etiology*

<i>Clinical Syndromes</i>	<i>Associated Viruses</i>
Upper respiratory infection (URI) (including common cold, coryza, nasopharyngitis, non-exudative tonsillopharyn- gitis)	Adenoviruses Echoviruses Parainfluenza Eaton's agent (PPLO) Respiratory syncytial Rhinoviruses Coxsackievirus A-21 Reoviruses ?
Exudative tonsillopharyngitis	Adenoviruses Infectious mononucle- osis* (possibly others)
Vesicular or ulcerative tonsillopharyngitis	Group A Coxsackievirus Herpesvirus hominis (simplex)
Acute lymphonodular pharyngitis	Coxsackievirus A-10
Laryngotracheobronchitis (croup)	Parainfluenza viruses Influenza Adenoviruses Respiratory syncytial Rhinoviruses ? Eaton's agent (PPLO)
Acute epiglottitis	?
Bronchiolitis	Respiratory syncytial Adenoviruses Parainfluenza Eaton's agent (PPLO) Influenza
Pneumonia	Respiratory syncytial Adenoviruses Parainfluenza Eaton's agent (PPLO) Influenza Herpesvirus varicellae Psittacosis Rubeola
Influenza-like illness	Influenza Parainfluenza Adenoviruses Group A coxsackievirus Group B coxsackievirus Lymphocytic chorio- meningitis

* Viral etiology not established.

TABLE 2.—Antigenic Shifts of A & B Influenza Viruses*

Type	Subgroup	Family	Era When Prevalent
A	Swine.....		? — 1928 — ?
A	PR-8.....		1934 - 1946
A	A-1.....		1946 - Present (?)
		FMI 1947	1946 - 1951
		Scandinavian 1953	1952 - 1955
		Haw/303/56	1956 - Present
A	A-2.....	Japan/305/57	1957 - 1962
		D.C./301/63	1963 - Present
B	Lee.....		? — 1940 - 1942
B	BON (Warner).....		1943 - 1953
B	Great Lakes 1954.....		1954 - 1961
B	Md/1/59.....		1959 - Present
B	TW/1/62.....		1962 - Present

*Adapted from Hilleman, M. R., Flatley, F. J., Anderson, S. A., Luecking, M. L., and Levinson, D. J.: Distribution and significance of Asian and other influenza antibodies in the human population, *New Eng. J. Med.*, 258:969-974, May 15, 1958.

probably account for no more than 6 per cent of viral infections during the childhood period. Types 1, 2, 3 and 5 are the serotypes most often encountered in pediatrics.

Syndromes vary, from those clinically indistinguishable from that caused by Group A beta hemolytic streptococci, to pneumonia,²⁹ conjunctivitis and keratoconjunctivitis.¹⁵ Additional clinical syndromes associated with the adenoviruses are listed in Table 1.

Recently, Trenton and his colleagues reported that adenoviruses types 12 and 18 can produce malignant tumors when inoculated into laboratory hamsters,⁶⁹ the first implication of a human virus in the production of tumors. There is no information available at present which would relate these agents to tumors in man.

Treatment and prophylaxis. Treatment is entirely symptomatic and secondary bacterial infections are infrequent. Prophylaxis for adenovirus infections is indicated only in military recruits in whom disease due to types 3, 4 and 7 occurs predictably. Because of this predictability, a divalent, inactivated vaccine containing types 4 and 7 is used in the military (types 3 and 7 cross serologically). The use of vaccine in childhood is probably not indicated as the type of adenovirus responsible for disease at any particular period cannot be predicted and the vaccine-induced immunity is transient.

Parainfluenza Viruses

The four known parainfluenza viruses were uncovered between 1956 and 1958. These agents are myxoviruses but are immunologically distinct from influenza. They exhibit intratypic antigen variation, although not as extreme as that noted with the influenza viruses.⁹ Parainfluenza I and III are the only two that have been consistently associated with significant outbreaks of disease although types II and IV have definitely been associated with respi-

ratory disease.⁴⁷ Original infection with these agents occurs early in life, and by young adulthood most persons have antibodies to types I and III. Reinfection can, and does, occur. Community outbreaks occur in the preschool segment of the population but probably do not come to widespread attention because they are not reflected in increased pneumonia deaths or school and industrial absenteeism.

Although the spectrum of disease associated with the parainfluenza viruses is wide (Table 1), these agents are the principal viruses responsible for croup. They account for approximately 44 per cent of the cases of croup studied at the Los Angeles County General Hospital. This figure is in close agreement with the 39 per cent reported in other series.⁵¹

Treatment and prophylaxis. As with all of the respiratory viruses treatment is entirely symptomatic. There are no commercially available vaccines, but work is presently proceeding in this direction.

Respiratory Syncytial (RS) Virus

Originally called Chimp Coryza Agent (CCA), respiratory syncytial virus was given its present name because of its characteristic cytopathogenic effect in tissue culture. This virus has the unique distinction of being the agent most commonly implicated in bronchiolitis and pneumonia in infancy. Primary infection usually occurs in infancy; and reinfection, characterized by milder cold-like symptoms, may occur throughout childhood and adult life. Antibody levels appear to be inversely associated with severity of disease. As with the other respiroviruses, subclinical infection is exceedingly common. An exanthem has been recently associated with RS virus infection.⁶

Respiratory syncytial virus infection in young children is present throughout the year, peaks coinciding with the peaks of pneumonia and bronchiolitis. Maxima are fairly predictable, with alternating

TABLE 3.—Recommended Diagnostic Procedures

Virus	Isolation Specimen										Recommended Serologic Test (Paired Sera)						
	CSF	STL	TS	BLD	V.F.	TIS	URINE	SAL	SPU	HIST	NEUT	HAI	CF	FA	CA	ST-MG	HDI
Adenovirus.....		X	X			Tonsil, lung					X	X	X				
Arbovirus.....	X			X		CNS					X	X	X				
Cytomegalovirus.....						Misc.	X§	X		X							
Eaton's Agent (PPLO).....			X			Lung			X				X	X	X	X	X
Enterovirus— (ECHO, Cox, Polio).....	X	X	X			CNS					X			X*			
Exanthems—																	
Rubeola.....			X	X		Lung					X	X	X				
Rubella.....		X	X	X							X						
H. varicellae.....					X	Misc.				X				X			
H. hominis.....	X		X		X	Misc.				X	X			X			
Vaccinia.....			X		X					X	X	X	X				
Variola.....				X	X		X			X	X	X	X				
Inclusion conjunct.										X							
Lymphocytic choriomeningitis (LCM).....	X			X							X**		X				
Myxovirus:																	
Influenza.....			X			Lung						X	X			X	
Parainfluenza.....			X			Lung						X	X			X	
Mumps.....	X		X			Misc.	X	X			X	X	X			X	
Psittacosis.....				X		Misc.			X	X			X†				
Rabies‡.....						CNS	X			X				X			
Reovirus (ECHO-10)		X	X									X					
Respiratory syncytial.....			X			Lung				X	X		X.				
Rhinovirus.....			X												X		

Key for Table 3—

CSF—Cerebrospinal fluid

STL—Stool (or rectal swab)

TS—Throat swab

BLD—Whole, clotted blood

V.F.—Vesicular fluid

TIS—Tissue

SAL—Saliva

SPU—Sputum

HIST—Histologic procedures

TS—Throat swab

BLD—Whole, clotted blood

V.F.—Vesicular fluid

TIS—Tissue

ST-MG—Strep-MG

HDI—Hemadsorption inhibition

*Not useful for all enteroviruses

**Late convalescent serum necessary

†Crosses with LGV

‡Animal diagnostic procedures

§Fresh, refrigerated; do not freeze

Key for Table 3—

CSF—Cerebrospinal fluid
STL—Stool (or rectal swab)
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V.F.—Vesicular fluid
TIS—Tissue

SAL—Saliva
SPU—Sputum
HIST—Histologic procedures
NEUT—Neutralization
HAI—Hemagglutination inhibition
CF—Complement fixation
CA—Cold agglutinins

ST-MG—Strep-MG

HDI—Hemadsorption inhibition

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†Crosses with LGV

‡Animal diagnostic procedures

§Fresh, refrigerated; do not freeze

13 to 15-month and 9 to 10-month intervals between peaks.⁵² There does not appear to be a unique geographical concentration of cases in the United States.

Treatment and prophylaxis. Treatment for RS virus infection is symptomatic. Of all the agents implicated in the causation of lower respiratory disease in children, this one is perhaps the most important one to consider for incorporation in a vaccine. Although a killed virus vaccine is under investigation, no prediction as to its availability can be made at this time.

Picornaviruses

Picornavirus is a new designation for the group of viruses which include the enteroviruses (ECHO, poliomyelitis, Coxsackie) and the rhinoviruses. The name is derived from pico, meaning very small, and RNA for their nucleic acid cores.

Enteroviruses. Heterogeneity of clinical expression is perhaps best demonstrated in this group. The etiologic role of enteroviruses in central nervous system (CNS) disease will be discussed in another section. Perhaps the best known respiratory manifestation of these agents is herpangina, or summer sore throat, associated with certain members of the Group A Coxsackie viruses. More recently, Coxsackie A-21 has been associated with epidemic, upper respiratory illness in military recruits,³¹ but its etiologic role in respiratory illness in childhood is as yet unknown. Coxsackie A-10 was recently described as the etiologic agent in lymphonodular pharyngitis, a syndrome similar to herpangina.⁶⁸ Miscellaneous ECHO viruses (types 11, 20 and 28, among others) have also been associated with sporadic, upper respiratory illnesses resembling the common cold: ECHO-28 belongs in the rhinovirus category.

Although they are not strictly classified as enteroviruses, the reoviruses (respiratory, enteric, orophans) will be described in this section. These agents, which formerly had the collective designation of ECHO-10, are divided into three types. Although probably important in disease in animals, the role of the reoviruses in human disease is not well defined.

Rhinoviruses. The group of viruses variously referred to as "common cold virus," coryzaviruses, salisbury strains, ERC viruses or inuriviruses is made up of entero-like viruses recently shown to be significantly associated with upper respiratory disease in children and adults. Studies of children in hospital with lower respiratory tract disease did not implicate these agents as significant causes of these syndromes.⁵⁶ To date, 53 separate serotypes²⁶ have been described, and this is probably only the beginning. Reinfection can, and does, occur.

Treatment and prophylaxis. Treatment for disease associated with the picornaviruses is symptomatic. Vaccines do not appear to hold much promise because of the large number of viruses involved.

Eaton's Agent (*mycoplasma pneumoniae*)

Eaton's Agent (*mycoplasma pneumoniae*), now characterized as a PPLO (for pleuropneumonia-like organism) was originally (in 1944) isolated from a patient with primary atypical pneumonia (PAP).¹⁶ Eaton's Agent is included in this discussion because originally it was believed to be a virus, and it produces disease closely resembling those produced by some viruses.

The ecologic features of this agent have been well studied in the Marine recruit population at Parris Island.¹¹ It spread slowly but disseminated widely. About 45 per cent of initially seronegative recruits showed serologic evidence of infection by the end of the 12-week training period, and one out of thirty with serologic evidence of infection had PAP. Nonspecific upper respiratory illness and subclinical cases were also associated with infection.¹¹ Recent findings suggest that infection with Eaton's Agent is associated with approximately 10 per cent of lower respiratory tract disease in children.¹⁰

Human volunteer studies have shown that reinfection can occur, although the presence of antibody is associated with mild or subclinical disease. Recently, similar studies⁶³ demonstrated that bullous myringitis can be a manifestation of disease due to this agent.

About 50 per cent of cases of Eaton's Agent pneumonia are associated with cold agglutinins, while cold agglutinin titers rarely rise in Eaton-negative pneumonia (less than 10 per cent). Retrospective studies have shown that about 80 per cent of cases of cold agglutinin-positive pneumonias are associated with Eaton's Agent.

Clinical and radiological response to the tetracyclines has been demonstrated.

General Comments on the Diagnosis of Viral Respiratory Disease in Children

The advances made during the last decade have not enabled us to make an etiological diagnosis based on clinical findings. As is the case with most viral diseases, all that is possible is a clinical "educated guess." The diagnosis of influenza during an epidemic or of adenovirus disease in a recruit camp is about the closest one can come to an etiological association based on clinical findings. There are, at present, no rapid laboratory tests available. All the syndromes produced by the agents described are interchangeable and, with the exception of Eaton's Agent pneumonia and herpangina, there are no associated pathognomonic (herpangina) signs or special clinical laboratory data (cold agglutinins). For

the other agents, viral etiology can only be determined in retrospect. Fortunately, most of the diseases produced by these agents are self-limited and not mortal.

Except for the presence of cold agglutinins toward the end of the second week of Eaton's Agent pneumonia, there is nothing new to add in the differentiation of viral and bacterial respiratory disease. Probably more than 90 per cent of upper respiratory disease in children and adults is viral and can be treated symptomatically. Cold agglutinin-positive pneumonia and bullous myringitis should be treated with one of the tetracyclines. The presence of tonsillar exudate would suggest antibiotic therapy for beta hemolytic streptococci.

Lower respiratory tract diseases (laryngotracheobronchitis, bronchiolitis, pneumonia) present problems not as yet amenable to "playing the odds." A high leukocyte content in peripheral blood does not always indicate bacterial infection. The median leukocyte count has been 17,000 in a group of children with lower respiratory tract illness currently being studied at Los Angeles County General Hospital.⁵⁷ The presence of a pleural effusion accompanying pneumonia is more frequent with bacterial disease, but effusions can accompany nonbacterial pneumonia. In adults, a smear and culture of sputum are still of great value. Unfortunately, since children usually swallow such material, it is not often available for study.

The frequency of secondary or concurrent bacterial infection is probably greatly overestimated, except possibly at the extremes of life and health. In normal children, antibiotic therapy probably functions more as a placebo and to bolster the physician's security in the absence of a precise diagnosis than as a defense against "secondary invaders"; and it may actually make superinfection more likely. We are thus left with new names for old diseases which are accompanied by the same problems.

The Exanthems of Viral Etiology

Of all the viral illnesses, the exanthems of childhood are perhaps the most distinctively pediatric. In this section, rather than repeating what is already well known, I will discuss the recent advances and the future prospects concerning the exanthems of childhood.

Rubeola (regular measles—Sarampión). Rubeola has been known as a disease entity for centuries. Our ancient forebears regarded it a disease serious enough to merit the descriptive name *morbilli*, the diminutive of *morbus*, which referred to the major disease *bubonic plague*. Thus, the ancients considered rubeola a minor plague, second only to disease produced by *pasturella pestis*.

American physicians consider regular measles a normal childhood disease, and rightly so. On the other hand, our colleagues in less affluent countries consider rubeola a severe and often fatal disease which deserves a great deal of attention. This is the case in Mexico where rubeola is the fourth most common cause of death in the age group 1 to 4 years.⁴¹ In one Nigerian hospital, the mortality rate for measles and its complications is 20 to 25 per cent.¹³ Less well known is the fact that even in the United States in the year immediately before the introduction of live vaccine for measles, rubeola caused more deaths than did poliomyelitis.⁷² In the main, these deaths were due to complications, encephalitis being the most severe.

The use of antimicrobial agents, which has decreased the severity and importance of the bacterial complications, has not in any way reduced the incidence of measles encephalitis which occurs in about one case in a thousand. Approximately 15 per cent of patients with encephalitis die, 60 per cent recover completely and 25 per cent show permanent mental or motor residua. The recent introduction of live and killed measles vaccine has provided a means of attacking the problem of encephalitis.

The immunity that follows the administration of live measles vaccine is probably life-long, but a definite statement to this effect awaits long-term follow-up. To date, there have been no instances of severe CNS reactions to the live vaccine. A "further attenuated" live vaccine is now available. This vaccine is associated with significantly fewer side-effects. With the advent and widespread use of these newer vaccines, we can look forward to an era in which measles will be removed as a serious public health problem.

The recommendations for use of these vaccines have recently been reviewed in this journal.⁷² The use of human gamma globulin for the prevention or modification of rubeola is familiar to all practitioners and will not be further elaborated.

Rubella (German measles). The isolation of rubella virus in tissue culture by Parkman and co-workers⁴⁹ and Weller and Neva⁷⁵ has provided the background for one of the most exciting advances in the field of pediatric virology in the last ten years. Utilizing human subjects, Green and coworkers²³ elegantly described the dynamics of virus infection and excretion. Rubella virus could be isolated from the pharynx for seven days before and for two weeks after the rash appeared. It was also present in serum for a week before, and as long as two days after, the appearance of rash. An unexpected finding was the isolation of virus from stool six days before and eight days after the rash developed. Virus was also present in the intervening periods. In Green's series, at least 25 per cent of children infected with

rubella virus were asymptomatic. Parkman and Buescher recently reported that the ratio of the number of persons infected to the number with disease may be as high as five or six to one among army recruits.⁸

The role of rubella virus in the production of congenital anomalies is well known. It is in this realm that these new findings provide the most stimulating prospects. The malformations which make up the so-called rubella syndrome include ocular defects (cataracts and microphthalmia), deafness, cardiac malformations and CNS anomalies. Green and coworkers²³ detected virus in fetal tissue obtained from seven of eight therapeutic abortions. Rubella virus has been isolated from fetal tissue obtained as long as one to eighteen weeks after onset of rash in a pregnant woman. Alford and Weller⁷³ detected virus in the pharynx and urine of a two and a half month old infant with the so-called rubella syndrome. The finding of prolonged viral infection in the fetus was unexpected and would add rubella to the herpesviruses as an agent capable of continued infection. Although rubella virus is not physically related to the herpesviruses, one might say that it is ecologically related.

As rubella is a mild disease and its complications rare, treatment is entirely symptomatic. Although arthritis and a post-rubella encephalitis have been described, these complications are uncommon. Prevention of this disease in the first trimester of pregnancy is most important. The efficacy of gamma globulin in the prevention of rubella has not been clearly established. Recent work by Green²³ has shown that gamma globulin will prevent clinical, but not subclinical, rubella. As virus can be detected in subclinical cases, the value of gamma globulin is questionable.

An ideal rubella vaccine would be one which, when given in childhood, would provide immunity through the child-bearing age. Further, the attenuated strain should not be communicated from the recently vaccinated child to the "potentially pregnant woman" unless the attenuated virus could be proven to be one which did not infect and subsequently cause malformations in the fetus. Work on such a vaccine is currently progressing rather rapidly.

Varicella (chicken pox). Although the advances in the study of *herpesvirus varicellae* have not been as dramatic as those with rubella and rubeola virus, Weller and his group^{76,77} have produced outstanding results in the study of this agent, and have laid the foundation for a better understanding of the disease as well as for the development of a vaccine. Thus, the isolation and characterization of *herpesvirus varicellae* has made it possible to defi-

nately establish that herpes zoster (shingles) is due to the same agent. Apparently, along with *herpesvirus hominis* and the cytomegalovirus, this agent is capable of remaining in a latent stage and manifesting its presence when body defense mechanisms are compromised. The dynamics of these manifestations had been previously elucidated epidemiologically, but virologic proof was lacking. Although vaccines are being tested, prophylaxis for varicella is in its infancy. Ross⁶⁴ showed that gamma globulin in large doses cannot prevent but does modify the disease.

Exanthem subitum (roseola infantum). Although roseola is probably a disease of viral etiology, no single virus has been implicated. Kempe and associates in 1950³⁴ transmitted the disease from one infant to another by the intravenous injection of bacteria-free serum. Neva and Enders (1954)⁴⁸ isolated an agent from a patient with an illness that resembled roseola, but these results have not been confirmed. We have isolated an ECHO-14 virus and an adenovirus respectively from the stools of two different children with roseola and demonstrated a subsequent increase in homologous, neutralizing antibody.

The incubation period of roseola is difficult to determine, as the contacts are rarely known, but it probably is about 10 to 21 days.⁵ The most striking clinical feature and the hallmark of the disease is the relationship of the fever to the rash. There is a paucity of physical signs, although pharyngeal and tympanic inflammation are often described.

The age incidence of roseola is quite distinctive. More than 95 per cent of the cases occur in infants between six months and three years of age. As there is rarely more than one case within a family, roseola probably has a high subclinical attack rate. It is unlike other infectious diseases in that both sexes are equally susceptible. It occurs the year around but, as with the other exanthems of childhood, the highest incidence is in the spring. Although epidemics have been described, the etiologic agent apparently does not spread as easily as do the agents of rubeola, rubella and varicella.

Treatment is symptomatic. Febrile seizures are the most significant, albeit a nonspecific complication of the illness.

Erythema infectiosum (fifth disease). Erythema infectiosum is classically described as a mildly contagious disease of childhood characterized by a typical eruption and usually no fever or other constitutional symptoms. This disease is presumably viral, but no definite etiologic agent has been isolated. Evidence that it is caused by a virus was reported by Werner and his associates (1957)⁷⁸ but has not been confirmed.

Krugman and Ward³⁵ divided the progression of the rash into three stages: first appearing on the face is a bright red erythema with circumoral pallor; second is a symmetrical rose-red macular-papular eruption of the extremities beginning proximally and then spreading to involve the trunk and distal extremities with lesions assuming a lace-like appearance due to central fading; and finally in the third stage, a evanescent rash which tends to recur if the skin is irritated or traumatized, or if there are wide swings in ambient temperature.

The diagnosis is entirely clinical and the only difficulties in this regard have to do with differential diagnosis and the unpredictability of the duration of the disease. As with roseola, a great deal of work is needed to further clarify etiologic and epidemiologic questions and the course of this illness.

Vaccinia and variola (smallpox). As variola is a disease not endemic or epidemic in the United States, my comments will be limited to vaccine and chemoprophylaxis.

In the field of the chemoprophylaxis of variola, Bauer and his associates³ have reported significant results with a compound called n-methylisatin- β thiosemicarbazone. They found that among more than 1,000 persons who were given the drug after contacts with variola, there was a significant decrease in the number of secondary cases. This occurred in vaccinated and unvaccinated persons even when the drug was given late in the incubation period. No data are available at present as to the value of this drug if given after disease has appeared.

Experience in the recent outbreaks of smallpox in Sweden, Great Britain and Poland, attests the value and the importance of universal vaccination. The virus used for the vaccination is referred to as vaccinia virus, and although this virus probably is a passage from the original cowpox virus of Jenner, the passage history has been lost and the vaccinia virus should be considered a laboratory strain. This prophylactic agent, the first live virus vaccine for humans, has been in use since the time of Jenner and has proven to be of great value. The problems involved in vaccination have been recently reviewed in this journal by Wehrle⁷² and I will merely summarize the review.

The most common problem encountered in vaccination is the so-called "no-take" reaction. The known reasons for "no-takes" are as follows: (1) Improper storage and subsequent inactivation of the live vaccine. (2) Improper skin preparation. Alcohol should not be used. Rather, the vaccination site should be cleansed with a rapidly evaporating fluid such as acetone or ether. (3) Improper inoculation. Vaccination is essentially the intracutaneous intro-

duction of vaccinia virus into the prickle cell layer of the skin. If this is not accomplished, replication will not occur. The multiple pressure method, utilizing lateral placement of the needle over the skin, is recommended.

Although a recent report⁵⁵ indicates that immunity may develop in the absence of a primary "take" a primary reaction should be the only one accepted as indication of a "take" in any person who has no history of smallpox or who has not been previously vaccinated. If the person has had previous vaccination, revaccination should be attempted with a batch of vaccine which is known to have produced primary responses in previously unvaccinated persons until a satisfactory immune reaction or accelerated "take" is observed. This precaution is very important, as inactivated vaccine can produce the accelerated skin reaction in persons who have previously experienced a successful vaccination.⁴ This reaction is one of delayed hypersensitivity and immunity does not follow.

The most serious complication of vaccination is encephalitis. The frequency of this complication is probably very low. In the large New York City experience of 1947, the rate was approximately one in 100,000.²⁴ The most severe non-CNS complication of vaccination is eczema vaccinatum. No one, child or adult, with active eczema or any other dermatitis should be vaccinated. It is also recommended that even a person who does not have eczema not be vaccinated if there is an opportunity for him to have contact with anyone at home who has eczema or dermatitis of another type.

Generalized vaccinia occurs in about one out of 100,000 vaccinations and usually is not severe. Vesicles usually appear about the ninth day after vaccination and go through the stages of the primary vaccination but much more rapidly.

A generalized erythema multiforme type of reaction has been described also occurring on about the ninth day of a primary "take."

Booster doses. Revaccination is advocated for everyone at approximately four to five-year intervals. To his dying day, Jenner believed that the use of cowpox virus provided life-long immunity. Recent work has shown that this is not true.

Treatment. When mild, generalized vaccinia should be treated symptomatically. When secondary infections occur, appropriate antibiotics should be chosen and used wisely. In cases of severe eczema vaccinatum, or generalized vaccinia, the use of hyperimmune, human, vaccinia gamma globulin is indicated. There is no specific treatment for reaction of erythema multiforme type, but steroids have been used with equivocal results.

Miscellaneous Viral Infections of Childhood

Herpesvirus Hominis (Herpes Simplex)

Whereas 85 to 95 per cent of infections with rubella virus result in disease, the situation is reversed in infections due to herpes simplex. By the age of four, most children have been infected with this virus, but infection is inapparent in about 99 per cent of patients. Whether the primary infection is subclinical or manifest, the herpes virus can remain in a latent state to reappear in the form of fever blisters or coldsores when the individual is under stress.

Clinical Manifestations of Primary Herpes Simplex Infections

Gingivostomatitis. This is the most common clinical manifestation of primary herpes simplex infection. It usually begins abruptly with the onset of fever. Painful vesicular involvement of the gums, tongue and buccal mucous membrane is concurrent with, or soon follows, the fever. Involvement of the soft palate is not uncommon and extension to the oropharynx is sometimes seen. The gums are usually swollen and friable, bleeding quite easily with light trauma. The child with gingivostomatitis is extremely uncomfortable and is a pathetic, drooling soul. Even mild liquids produce pain, either by direct contact or on the act of swallowing. The disease usually runs a course of five to seven days and the treatment is symptomatic. The most serious complication is dehydration resulting from decreased intake of fluids. Healing usually occurs without scarring.

Vulvovaginitis. This is a rare manifestation of primary herpes. The onset and course of herpetic involvement of the vulva is similar to that seen in gingivostomatitis. The pain is just as severe and the pathologic changes similar to those seen with gingivostomatitis. Due to the proximity of the urethra, dysuria is not uncommon. Deep scarring is usually absent.

Eczema herpeticum (Kaposi's varicelliform eruption). This syndrome is a manifestation of primary herpes superimposed upon eczema. The lesions appear in crops, giving the appearance of varicella. Thus, the name. The systemic signs are severe, with pronounced fever lasting seven to nine days. When large weeping and oozy skin surface areas are present, complications of fluid loss and superimposed bacterial infection should always be anticipated. Unless there is severe secondary infection, deep scarring usually does not result.

Traumatic herpes. Physically traumatized areas of the skin may be the site of primary herpetic involvement. The trauma may be in the form of an

abrasion, burn or other damage compromising skin integrity. Although the source of the virus may be overt (cold sore in a member of the family), the latency of herpesvirus infection makes any close contact a potential vector. Fever and constitutional signs accompany the vesicular lesions.

Keratoconjunctivitis. Although herpetic keratoconjunctivitis may be associated with fever and constitutional symptoms, the most important complication of this syndrome is permanent scarring of the cornea. The use of (IDU) 5-iodo-2-deoxyuridine (Stoxil®), the first commercially available antiviral drug, has been shown by Kaufman³³ to be efficacious. Thus far, this drug has been shown to be active against herpesvirus infection only when used locally in the conjunctival sac. There is no evidence that it is useful in systemic involvement.

Meningoencephalitis. Acute herpetic meningoencephalitis is a primary although a rare manifestation of primary herpesvirus infection. This syndrome has been associated with a high morbidity and mortality rate.⁴³

Disseminated visceral herpetic infection. This is almost exclusively confined to the premature and newborn period and will be discussed in a later section.

Recurrent herpes infection. Recurrent herpes infection is more common than the primary type and usually takes the form of so-called fever blisters or coldsores. However, any other area of the skin or mucous membranes may become involved. Constitutional symptoms and fever are usually not associated with infection of the recurrent type. Treatment is entirely symptomatic. There is no experimental evidence that vaccination with vaccinia virus is useful in recurrent herpes labialis. Although both agents produce vesicular lesions, there is no antigenic relationship between the two.

Diagnosis of herpes infection can usually be made clinically. When the differential diagnosis includes generalized vaccinia, varicella or variola, the virus laboratory may be necessary. The laboratory methods used, and the specimens necessary for confirmation of herpetic cause, can be seen in Table 3.

Mumps (Epidemic Parotitis)

Mumps may be considered the disease of childhood with the most protean manifestations. Although best known for involvement of the salivary glands, mumps has definitely been implicated in the etiology of carditis,⁷⁹ pericarditis,³² orchitis, oophoritis and meningoencephalitis.

Pancreatitis, a severe but uncommon manifestation of mumps infection, is manifested by severe, epigastric pain and tenderness often associated with fever, chills, weakness, nausea, and vomiting. Recovery is usually complete.

Orchitis, probably the most widely discussed complication of mumps, appears in about 20 to 30 per cent of post-pubertal boys who have the disease. It is unilateral in approximately 98 per cent of cases. The fear that mumps orchitis may result in sterility is unwarranted. Males who are threatened by the spectre of sterility may take assurance from the fact that rarely are both testes affected and even when they are the involvement is of a spotty nature.

Treatment. Treatment of uncomplicated mumps is entirely symptomatic, most persons requiring merely antipyretic and analgesic drugs. The treatment of orchitis is more complicated. The efficacy of diethylstilbestrol and surgical incision of the tunica albuginea has not been confirmed by well controlled studies. Many physicians believe that corticosteroids reduce testicular swelling, but this also lacks well controlled documentation. Convalescent gamma globulin in doses of 20 ml intramuscularly has been reported by Gellis and coworkers²¹ to significantly reduce the incidence of orchitis. Convalescent mumps serum should not be used, for the agent of serum hepatitis or infectious hepatitis may be carried in it.

Question often arises as to what course of action should be followed when an adult without a previous history of mumps is exposed to a child with the disease. First, the adult should be assured that there is a 50 per cent probability that he has already had subclinical mumps. Provided the person tested does not have sensitivity to egg, a positive reaction to a skin test for mumps may be indicative of previous subclinical infection. In persons who have a negative skin test result, the use of hyperimmune mumps gamma globulin is indicated when an economic hardship would result from disease. The use of mumps vaccine (killed) in adults exposed to mumps has not received adequate and controlled testing. There are indications, however, that the vaccine may be effective when given to children immediately before exposure (two weeks). Immunity following mumps vaccine appears to be temporary.

Nonbacterial Diarrhea

With the exceptions of the common cold and other upper respiratory tract infections, the so-called nonbacterial diarrheas perhaps have been associated with a larger body of folklore, misinformation and misnomers than any other group of illnesses in childhood. Various referred to as gastroenteritis, summer diarrhea or infant diarrhea, this large group of diseases is poorly understood. Viruses were etiologically implicated as far back as 1943 when Light and Hodes⁴⁰ published the results of their studies. This was followed in 1944 by the

studies of Budding and Dodd⁷ and Gordon and co-workers in 1947.²²

The etiologic role of the enteroviruses in these syndromes has not been well defined. Confusion has resulted because of the prefixing of the epithet "entero" to this group of agents, many persons assuming that enteric disease, and thus, diarrhea, is caused by these viruses. Although this is true in a few cases, it is certain that many of the nonbacterial diarrheas are not due to these agents. Other misnomers that have been applied to this group of diseases are intestinal flu and intestinal grippie. The term diarrhea, or diarrhea and vomiting, is sufficient and is not confused with influenza, which is a true respiratory tract disease entity known to be due to a specific group of etiologic agents. Specific nomenclature will have to await isolation of specific agents and proof that these agents do in fact cause the disease.

The problem in ascribing a specific diarrhea episode to agents isolated from the gastrointestinal tract are great. These difficulties result from the fact that at any particular point in time, multiple types of microorganisms—viruses as well as bacteria and protozoa—can be isolated from the gastrointestinal tract of healthy children, as well as the sick. Studies must be designed which include the serologic response of the host to any agent isolated from the gastrointestinal tract. Concurrent, similar studies among healthy children in the same community are essential to establish a statistically, excessive prevalence of the suspected viruses among sick children. Such work has been conducted by Ramos-Alvarez and Sabin⁶¹ and Ramos-Alvarez and Olarte.⁶⁰ These investigators demonstrated that enteroviruses, as well as adenoviruses, can be associated with diarrheal disease. However, these studies are few compared to the number of cases of diarrhea seen throughout the United States; and until concerted effort similar to that now being expended on the respiratory viruses is begun, our knowledge of the disease potential of these various agents will be incomplete.

Viral Infections of the Fetus and Newborn

Cytomegalic inclusion disease (CID). (*Inclusion disease, generalized salivary gland infection, salivary gland virus inclusion disease and generalized cytomegalic inclusion disease.*) Until the propagation of the CID virus in tissue culture by Smith in 1956,⁶⁷ diagnosis of this disease was retrospective and rested on pathological descriptions of diseased tissue. Since 1956 our knowledge of the virus, and subsequently of the pathogenesis of CID, has increased greatly. The physiochemical properties, and the fact that the agent produces a type A intranu-

clear inclusion, argue in favor of including the cytomegalovirus in the herpes group of viruses. Inclusion-bearing cells have been found in salivary glands, kidney, liver, lung, brain, pancreas, thyroid, adrenal gland, gastrointestinal tract, spleen, thymus, lymph nodes, parathyroid gland, pituitary gland, testis, epididymis, ovary, heart, eye, muscle, bone marrow, skin and blood vessels. The description of large intranuclear inclusions in cells found in urinary sediment by Fetterman¹⁹ in 1952 was a significant advance in the diagnosis of CID.

The clinical features of congenital CID are not unique and include jaundice, hepatosplenomegaly and thrombocytopenic purpura. Patients may be jaundiced from one to several weeks after birth; less often, jaundice appears at some time within the first two months and may persist as long as four months.²⁷ Microcephaly is found in most infants with CID and it is not unusual for an infected infant to excrete cytomegalovirus in the urine for two to three years after birth. This persistence of virus shedding is similar to that seen with *herpesvirus hominis*, although the rate and quantity of virus excretion appears to be greater with the cytomegalovirus.

The role of cytomegalovirus in the postnatal period is not well understood. The virus has been isolated from infants presenting with interstitial pneumonitis, and its association with *pneumocystis carinii* has been described. It is not known whether infants infected with cytomegalovirus after birth are affected neurologically. Although cytomegalovirus is a definite cause for neonatal hepatitis, it has not been recovered from most infants and young children with unexplained hepatitis. The role of cytomegalovirus during childhood is also poorly understood. It is probable that severe generalized infection is limited to newborn and premature infants. In older children, asymptomatic infection is relatively common.

Inclusion bodies have been observed in the salivary gland of 10 to 30 per cent of pediatric patients at autopsy, suggesting wide virus dissemination, and it would seem reasonable to postulate that most persons acquire the disease in an inapparent form. Rowe and coworkers, and Weller and his associates demonstrated an increasing incidence of complement fixation and neutralizing antibody with age, and also observed the presence of these antibodies in gamma globulin. The virus has been isolated from a child with leukemia and pneumonia and from the urine of children with unexplained hepatosplenomegaly. On the other hand virus has been isolated from the urine and mouth swabs of normal children. Thus, the relationship of this virus to childhood disease is still unknown. Hanshaw²⁷ has recently summarized these findings.

Infants surviving cytomegalic inclusion disease usually have severe neurologic sequelae. Microcephaly, motor dysfunction and mental retardation probably result from brain damage secondary to generalized infection. All but two of 16 patients observed by Weller⁷⁴ had residual damage.

Differential diagnosis includes congenital toxoplasmosis, erythroblastosis fetalis, disseminated herpes simplex, sepsis of the newborn and congenital syphilis. Diagnosis is based upon the clinical findings and the isolation of virus from the urine or diseased tissue along with demonstration of the characteristic inclusion in cells found in the urinary sediment. Intracranial calcification is seen in approximately 20 per cent of patients.

Disseminated herpes simplex infection. Unlike the pattern of infection in the older child in which the subclinical variety is the "norm," infection in the premature and term newborn infant usually results in disseminated disease. The virus can be acquired by the newborn in one of three ways: (1) From lesions in the mother's genital tract, (2) from lesions in a nursery attendant and (3) possibly by transplacental transfer of virus.⁴⁶ Unlike a patient with erythroblastosis fetalis, the child usually appears well until about the fifth to ninth day of life. Infection during the newborn period is usually fatal, although there are occasional cases in which the only manifestation may be skin vesicles. An infant with severe, generalized infection usually comes to medical attention because of hepatosplenomegaly, jaundice, lethargy and, sometimes, convulsions. The virus has been isolated from all organs, tissues and fluids studied, including the liver, spleen, brain and spinal fluid.

Diagnosis in the newborn period is based upon demonstration of typical intranuclear inclusions and/or isolation of virus from diseased tissue. Differential diagnosis includes cytomegalic inclusion disease, erythroblastosis fetalis, sepsis of the newborn, toxoplasmosis and syphilis.

Group B Coxsackie virus infection of the newborn. Group B Coxsackie virus infection in the newborn manifests itself in a manner quite different from that seen in older children and adults. With the report of van Creveld and de Jager⁷⁰ it became apparent that myocarditis seen in the first ten days of life may be due to these agents. In addition to infection of the myocardium, other organs have been involved. Rapmund and coworkers⁶² isolated Group B type 4 Coxsackie virus from the heart, brain and kidneys of a child who died of myocarditis in the second week of life. The child's mother in this case had aseptic meningitis and made an uneventful recovery. Here, then, is another instance in which newborn infants respond to infection differently than adults or older children. Newborn in-

infants with Coxsackie virus infections resemble those with disseminated herpesvirus, and they have been described by some investigators as "sacks of virus." Recently, Wright and his associates⁸⁰ isolated a Group A type 16 Coxsackie virus from the myocardium of a seven-week-old infant who died of myocarditis. The diagnosis of Coxsackie virus infection of the newborn may be confirmed by the isolation of virus from the stool as well as from diseased tissue.

Inclusion body conjunctivitis (Inclusion blennorrhoea). Inclusion body conjunctivitis is caused by a virus of the trachoma group. Infection is probably acquired during the birth process, as inclusion-bearing cells have been described in the cervical epithelium in many adult females. The disease usually appears after the fifth day of life with a purulent conjunctivitis which is clinically indistinguishable from that due to chemicals or *Neisseria gonorrhoea*. The diagnosis is confirmed by appropriate staining of conjunctival scrapings and the demonstration of the characteristic intracytoplasmic inclusion bodies. Because this infection does not appear until about the fifth day of life and most infants are discharged from the nursery before that time, many instances of the infection go unnoticed. Treatment with sulfonamides or tetracycline ointments is usually successful. There is usually no scarring.

Other Viral Diseases

Because the scope of pediatric virology essentially encompasses all of human virology, only those agents of particular importance to pediatricians have been stressed. For readers with special interests in specific disease syndromes, the following references are suggested:

- (1) Central Nervous System Disease of Viral Etiology, reference numbers 1, 2, 12, 17, 18, 20, 37-39, 42, 43, 53, 54, 58, 59, 71, 72.
- (2) Rabies, reference numbers 14, 25, 50.
- (3) Hepatitis, reference numbers 36 and 45.

Comment

The usual format for a review article consists of an introduction, in which the importance of the subject is stressed, a detailed historical review, followed by a larger section of factual material, and finally predictions by the reviewer as to what might be expected in the future. However, feeling that such a formal presentation discourages conceptual synthesis, I have not attempted to review the entire field of pediatric virology. However, certain concepts that can never become outdated can be formulated from the mass of new data. In fact, future information can only serve to reinforce them. These concepts, which are not new to the field of virology,

are those of the pantropism of infectious agents and the variability of specific host response.

The concept of pantropism is well illustrated in the wide spectrum of disease caused by the enteroviruses. Thus, members of the Group B Coxsackie viruses have been associated with, or proven to be etiologic agents in, aseptic meningitis, pleurodynia, neonatal myocarditis and acute benign pericarditis. Various ECHO viruses have been shown to cause aseptic meningitis as well as many exanthematous syndromes which may be clinically indistinguishable from rubella or roseola. However, exanthems have also been observed in disease due to the Group A Coxsackie viruses. The polioviruses continue to be the principal causes of severe paralytic CNS disease but, as is the case with the other enteroviruses, they have also been implicated in the causation of gastroenteritis.

All of this information merely emphasizes the second concept which has been minimized or even overlooked in the mad scramble for new viral agents. That is, the clinical picture produced by infection with any one agent depends not only on the biological characteristics of that agent but also on the biological characteristics of the host. Here again enteroviral disease may be used as an example. Several of the Group B Coxsackie viruses have been proven to be etiologic agents of neonatal myocarditis but the very person from whom the neonate acquired the infection, its mother, may manifest a clinical picture of aseptic meningitis, a syndrome quite different from that in the newborn. Here, perhaps, the differences in host response stands out in their boldest relief—a self-limited infection as opposed to a fatal one. The ECHO viruses, especially ECHO-9, are frequently implicated in exanthematous disease, but manifestations of this kind are more often seen in children than in adults. Such differences in host response are less obvious in the field of viral disease of the respiratory tract, and yet we are all familiar with family outbreaks of respiratory disease which produce croup or bronchiolitis in a 12-month-old child and pharyngitis in his 10-year-old sibling.

The concept of the variability of host response is again well illustrated by the phenomena of subclinical and latent infections. Infection with *herpesvirus hominis* is perhaps the best known example of latent infection in man, while a related agent, *herpesvirus simiae* ("Monkey B") produces similar manifestations in certain monkeys, but fatal encephalitis in man. The adenoviruses can produce both clinical and subclinical disease in man, but that they can remain in a "latent" stage is less appreciated. Rabbits inoculated with the adenoviruses merely respond with the formation of antibody, while newborn hamsters infected with either type

12 or 18 adenovirus can, and do, develop transmissible tumors. Similarly, Simian Virus 40 (SV-40) infection in monkeys is characteristically latent but produces sarcomas in newborn hamsters while humans inadvertently inoculated with this agent respond, as far as is known at present, with the formation of antibody alone. The factors governing the phenomena of subclinical and latent infection have deservedly assumed increasing importance in the fields of virology, epidemiology and immunology. They straddle the variables of age, sex, heredity, climate and animal species to become the common denominator in the host's response to infection.

The pediatrician, in particular, is concerned with that age group in which the biological differences in the host are most outstanding, for he is dealing with a group of susceptibles that are continually in that state of change which we call growth. In the confines of no other specialty can the spectrum of disease due to a single agent be viewed more succinctly. In the past, the pediatrician, being cognizant of this basic fact, became aware early in his training that if he were to understand and treat infectious disease effectively, he would have to think in terms of broad diagnostic categories when considering an individual patient's illness. In recent years, however, there has been a trend toward making more specific etiological diagnosis of clinical viral disease. Although the direction of this trend is understandable, the clinician is cautioned to avoid the use of tubular vision in the diagnosis of a particular infectious disease. For instance, during an epidemic of ECHO virus disease it is very tempting to ascribe a particular exanthem to this agent. However, the exanthem in question may very well be scarlet fever, or meningococcemia, *diseases which can be treated*, rather than the more ethereal ECHO-9 which *cannot be treated*. The myocarditis or pericarditis seen in a 10-year-old is more likely to be rheumatic in origin than due to the more "modern" Group B Coxsackie viruses.

There is no need other than the personal security and self-satisfaction of the physician to assign a specific etiological diagnosis to an acute illness which, from a clinical point of view, is presumably of viral origin. Rather, a broad etiological diagnosis is all that is possible—and all that is necessary—during the acute phase of such an illness. Is it really important whether one says that the cause of a case of aseptic meningitis is "one of the enteroviruses" rather than being specific and ascribing the disease to a Group B Coxsackie, type 2? It should not be inferred from this that a more specific diagnosis should not be sought. However, the main value of specific diagnosis lies not in the particular acute phase treatment of an individual patient, but in the

prognosis of his illness and in the epidemiological repercussions it may have on the community.

Fortunately for the pediatrician, and certainly for children, viral infections in childhood are rarely fatal, indeed are almost never serious. In the future, the efforts of the pediatrician and the virologist, should be directed mainly toward those areas in which fetal and infant salvage are possible. In the area of fetal salvage, the development of an effective and safe rubella vaccine is most pressing. Further, efforts should be made in the prevention of severe viral lower respiratory tract disease and diseases in which permanent residua may be a problem. As to the milder viral respiratory tract diseases of childhood, I feel that the attitude of Christopher Robin should be followed.

*Christopher Robin
Got up in the morning,
The sneezes had vanished away.
And the look in his eye
Seemed to say to the sky,
"Now, how to amuse them today?"*

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CASE REPORTS

Hepatoma With Massive Hemorrhage

Report of Three Cases

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RECENT EXPERIENCE with three cases of hepatoma complicated by massive hemorrhage has prompted this report and a review of the clinical aspects of the disease. Although massive hemorrhage had been reported in the past,^{1-5,8-9,11} further emphasis should be given to this dramatic and unusual occurrence.

Reports of Cases

CASE 1. A 57-year-old Filipino machinist was admitted to Franklin Hospital (San Francisco) with chief complaint of severe pain in the right upper quadrant of the abdomen, radiating to the right shoulder, of two hours' duration. For the previous two months he had complained of vague pain in the

shoulders and neck and paresthesiae of the legs. These symptoms were moderately severe but not disabling. There was no loss of weight and no systemic symptoms. Past history included a diagnosis of syphilis (and treatment with an arsenical compound) 20 years previously, extra-systoles treated with quinidine ten years ago and polycythemia of unknown type noted in a single blood examination three years before the present admission. Hemoglobin at that time was 18.8 gm per 100 ml, packed cell volume 59 per cent and erythrocytes 6 million per cu mm.

Abnormalities noted on physical examination were an irregular pulse at a rate of 120 per minute, blood pressure of 80/60 mm of mercury, and diaphoresis. At the time of the present admission, packed cell volume was 40 per cent and leukocytes numbered 14,000 per cu mm. The urine reaction for albumin was 2 plus. On microscopic examination, pus cells were seen and there were 30 hyaline casts per low power field. Serum glutamic oxaloacetic transaminase (SGOT) was 40 units. An electrocardiogram showed complete heart block with ventricular contractions from multiple foci.

The shock-like state responded for a time to metaraminol infusion, and the cardiac rhythm became normal. Daily electrocardiograms were subsequently normal.

On the second hospital day, shock deepened, oliguria was noted and the abdomen was found to be tense and silent. Scleral icterus developed. On the third day, the patient's mental state changed from anxiety to stupor. Increasingly larger doses of metaraminol, and subsequently levarterenol bitartrate, were necessary to maintain pressure. The administration of two units of whole blood and 300 mg of hydrocortisone hemi-succinate did not alter the condition. On this day, the SGOT was 2,015 units, alkaline phosphatase was 55 King-Armstrong units, serum amylase 388 units, and total serum bilirubin 7 mg per 100 ml. Packed cell volume dropped from 36 per cent to 33 per cent despite the blood transfusions. There was progressive oliguria. The patient

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lapsed into a hyperventilating coma on the fourth day and died that evening.

At autopsy, a liter of blood was present in the peritoneal cavity. The liver weighed 1,600 gm and was diffusely and uniformly studded with nodules 1 to 3 mm in diameter. No large bands of scar tissue or pseudolobules were present. Situated in the dome of the right lobe was an 8 cm subcapsular neoplastic nodule, poorly demarcated from the surrounding cirrhotic liver tissue. It was for the most part necrotic and filled with blood. Many areas of infarction measuring up to 1 cm in diameter were seen. Rupture of the large mass into the peritoneal cavity was found to be the source of the bleeding. Microscopic sections revealed hepatoma, posthepatic cirrhosis and centrilobular parenchymal necrosis. The latter was thought to be due to the prolonged shock.

CASE 2. A 60-year-old Negro man was admitted to San Francisco General Hospital for weakness, loss of weight and vague abdominal pain of two months' duration. Five days before admission, the abdominal pain became more severe, radiated to the left subscapular region, was intensified by eating and eased by lying down. Jaundice had appeared the day before admission to hospital. For four years the patient had been a heavy drinker.

On examination the patient was observed to be drowsy and the sclerae were icteric. A grade 2 basal systolic heart murmur was heard. The liver was palpable one and a half fingerbreadths below the right costal margin and was non-tender. There was an umbilical hernia. Asterixis was present.

Abnormalities in results of laboratory studies were: macrocytic, normochromic anemia; reticulocyte count, 5 per cent; alkaline phosphatase 3.8 Bessey-Lowry units (normal, 1 to 3); prothrombin time 29 per cent; amylase 107 units; albumin 2.9 gm per 100 ml; globulin 5.1 gm per 100 ml; bilirubin 18.4 mg per 100 ml; SGOT 150 units; and fasting blood sugar 30 mg per 100 ml. A scintigram of the liver failed to reveal a mass. A needle biopsy was interpreted as showing "fibrosis and alcoholic hepatitis."

On conservative management the patient gradually became more wakeful, but asterixis persisted. On the 20th hospital day the patient fell out of bed and an hour later was noted to be in shock. There was no improvement after infusion of 50 per cent glucose solution. Shock deepened, the abdomen became distended and the patient was taken to the operating room. The peritoneal cavity contained 7,000 ml of blood. A tumor in the dome of the liver was found to be the source of the bleeding, which could not be controlled. The patient died in the recovery room.

At autopsy a hepatoma with metastasis to the wall of the duodenum and periaortic lymph nodes was observed. There were three masses in the right dome of the liver, two of which showed erosion through the capsule. All three masses had necrotic centers. Metabolic cirrhosis was present.

CASE 3. A 52-year-old Caucasian man was admitted to Walter Reed General Hospital* with chief complaint of abdominal pain of two months' duration. It had begun as a mild, vague discomfort in the lower abdomen, associated with a low-grade fever and night sweats. These symptoms gradually increased in severity until, a month before admission, epigastric distress and nausea also developed. Fried foods and smoking cigarettes aggravated the complaints. The patient noticed weakness and fatigability, and two weeks before admission he had an episode of sharp pain in the right upper quadrant of the abdomen, radiating laterally and to the right shoulder, which lasted about 15 minutes. This recurred the following day. The pain was accentuated on deep breathing and the nausea and lassitude increased. One week before admission, after a cocktail, he had deep, diffuse abdominal pain which lasted an hour and a half. Over the next five days, there were further episodes of right upper quadrant abdominal pain. Fever and night sweats continued.

The patient was tall and slightly obese, and at the time of examination the oral temperature was 99.4° F. Slight, diffuse tenderness was elicited on deep palpation of the abdomen, with an accentuation of right upper quadrant discomfort on deep inspiration. Tenderness to percussion was noted low on the right side of the chest and in the right costovertebral angle. No organs or masses were palpable.

Laboratory studies disclosed persistent leukocytosis ranging from 15,000 to 40,000 cells per cu mm, with the cell differential showing an increasing shift to the left and eosinophilia. The latter reached 37 per cent two weeks after admission. At the time of admission the packed cell volume was 38 per cent. Severe recurrent anemia developed. Serum iron was 36 mcg per 100 ml. Serum bilirubin increased from 0.4 mg to 3 mg per 100 ml. Alkaline phosphatase rose from 18.4 to 35 King-Armstrong units.

Gastrointestinal roentgen studies on admission were interpreted as showing a suggestion of double contour on the medial aspect of the duodenal loop with some spiking of the mucosa. Scintigrams indicated filling defects in the liver which increased in size. Material aspirated from a liver "abscess" contained malignant cells. Liver biopsy showed carcinoma.

*Complete clinical and pathologic records were supplied by Paul W. Palmer, Lieutenant Colonel, MC, pathologist, Walter Reed General Hospital.

The fever and abdominal pain continued. After 11 days of observation, a course of emetine and chloroquin was given for eight days without improvement. Laparotomy was performed on the 20th hospital day. The liver was studded with tumor nodules which yielded old blood on aspiration. Anemia progressed in severity despite multiple blood transfusions, with hemoglobin as low as 7.6 gm per 100 ml and packed cell volume reaching 25 per cent. The patient died on the third postoperative day.

At autopsy a cholangiolitic-hepatic carcinoma which had almost completely replaced existing liver tissue was noted. Metastatic lesions in the pancreas had ulcerated into the duodenum, from which massive gastrointestinal bleeding had occurred. The stomach was filled with 300 ml of dark gray to tarry material and tarry stool filled the remainder of the gastrointestinal tract. The liver weighed 4,800 grams. Centrolobular parenchymal necrosis was seen. Cirrhosis was not present.

Discussion

Wide variation of the clinical course of hepatoma is well recognized. The "typical course" is that of weight loss, low-grade fever, an enlarging, hard nodular liver and abdominal pain which progresses on to death within a period of two to six weeks. A variant is cirrhosis without much change in the condition of the patient for many months or years, and then sudden deterioration. A second variant is development of subacute febrile disease for which there is no obvious cause, and then steady deterioration. Rarely, complications arising from metastatic lesions appear as the first manifestation. Another variant is weight loss and deterioration without obvious cause or abnormal physical findings (occult cancer) as the first evidence of the disease. In contrast to these more commonly seen clinical courses, Benner¹ reported "atypical" beginning symptoms in 14 of 47 cases of hepatoma. In five cases the first symptoms were referable to disease of the chest—bloody pleural effusion in four, and, in the other case, dyspnea, dysphagia and a mass in the clavicle. In two cases systolic bruits over the liver were heard. One each masqueraded as acute cholecystitis, hepatic decompensation and Budd-Chiari syndrome. In one, "fever of unknown origin" was the first symptom (as in the second variant mentioned above). In the remaining three atypical cases in Benner's series the patients were admitted with acute abdominal pain, prostration and hemorrhage into the peritoneal cavity.

Berman² in a comprehensive monograph based on his experience in South Africa where hepatoma was the most common malignant tumor, cited six cases of the disease in previously healthy and vigorous

patients who had no previous history of abnormal muscular exertion in the recent past. All of these patients who had no previous history of trauma but usually a history of abnormal muscular exertion in the recent past. All of these patients had symptoms and signs of abdominal catastrophe and shock. Two died shortly after admission before surgical intervention was possible. In one patient who died two days after admission, operation showed the peritoneal cavity filled with blood. One patient, moribund on admission, died the next day without operation. The remaining two died within 40 days after operation. They were admitted because of diagnostic problems, and during the stay in hospital "typical" signs of hepatoma developed. In all six cases, the source of the massive bleeding into the peritoneal cavity was the rupture of necrotic tumor nodules in the liver.

MacDonald⁴ described 27 hemorrhagic episodes in a total of 108 cases of hepatoma studied at the Mallory Institute of Pathology. In 23 of these cases, bleeding was from esophageal varices or peptic ulcer. Four patients, however, had intraperitoneal bleeding from necrotic tumor nodules. Sanford⁸ reported nine cases of hemorrhage associated with hepatoma, in five of which bleeding was from esophageal varices and in four intraperitoneal from rupture of necrotic masses in the liver. Gustafson³ reported three instances of intraperitoneal hemorrhage in a study of 62 cases of hepatoma. The highest incidence of intraperitoneal hemorrhage (five of 16 cases of hepatoma) was reported by Mathews,⁵ and the lowest (1 in 134 cases) by Tull.⁹ Wilbur¹¹ described 49 cases of hepatoma, in seven of which bleeding was noted clinically. Four of the patients had epistaxis, two hematemesis and one melena. Three had fatal hemorrhage, two from esophageal varices and one from epistaxis. However, at autopsy 12 other patients had significant hemorrhagic ascitic fluid arising from tumor nodules involving the surface of the liver. Although the massive bleeding was not recognized clinically in these 12 cases, it was thought to have played a significant role in the death of the patients.

It is of additional interest that in Case 1 of the three cases herein reported, polycythemia was noted three years before the fatal hemorrhage. Since McFadzean⁶ noted this hematologic phenomenon in 10 per cent of the cases of hepatoma he reported, it is tempting to speculate that the tumor in Case 1 was present even then. The patient also had had syphilis which had been treated with arsenicals 20 years before he died. Wells¹⁰ noted that 15 of 43 patients with hepatoma studied by him had either a previous history of syphilis treated with heavy metals or a positive reaction to a serologic test for syphilis at the time of their last admission to hospi-

tal. Twelve of these patients had postnecrotic cirrhosis.

MacDonald⁴ pointed out that the incidence of hepatoma was higher in association with "healed acute yellow atrophy" than any other form of liver disease (29 in 222 cases studied by him). It is conceivable that, not *Treponema*, but the spread of serum hepatitis virus during arsenical therapy leading to healed acute yellow atrophy was responsible for the hepatoma. In Case 2 of this report, the presence of hypoglycemia⁷ aroused the suspicion of hepatoma. Unfortunately the diagnosis could not be confirmed by biopsy or by scintigram and remained hidden until massive bleeding made surgical intervention necessary. The third patient had what we believe to be the first reported case of hemorrhage from metastatic nodules of cholangio-carcinoma tumor mass invading the gastrointestinal tract.

Summary

Three cases of hepatoma associated with massive intra-abdominal hemorrhage have been described. A review of the literature indicated that, while rare, this complication had occurred in several reported experiences. Note was taken of the association of polycythemia, hypoglycemia and syphilis with hepatoma. One of the three cases is believed to be the first reported instance of bleeding from metastatic lesions, originating from a cholangiocarcinoma, that had invaded the upper gastrointestinal tract.

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Late Small Bowel Obstruction Secondary to Post-Radiation Enteritis

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THE EARLY COMPLICATIONS of irradiation therapy to the pelvis and abdomen are well known. Less commonly recognized is the fact that acute or chronic gastrointestinal derangements due to the effects of irradiation may occur months or many years later.¹³ The problem is to differentiate the pathologic process (radiation, factitial or actinic enteritis)⁵ from a recurrent neoplasm which it can mimic in every way. For example, obstruction, diarrhea or hemorrhage as a late sequel of irradiation might be attributed to neoplasm, causing a delay in proper treatment. It is even possible that additional radiation therapy may be ordered, with even further injury to the intestine.

Review of the Literature

The actual incidence of radiation-induced gastrointestinal stricture or enteritis is difficult to determine from the literature. The reported incidence ranges from 1.6 per cent to over 17 per cent of patients with low abdominal or pelvic tumors treated with radiation therapy.^{2,5,17} In 1942, Mulligan¹⁰ summarized all cases of injury to the gastrointestinal tract by x-ray, and included the first reported cases by Walsh¹⁸ in 1897.

In a series reported by Requarth¹² the incidence of postirradiation stricture was 2.1 per cent. In nine the stricture was in the rectosigmoid and in four it was in the ileum. Wigby²⁰ reported that 7.9 per cent of a series of patients who had radiation therapy for carcinoma of the cervix, later had colon or rectal strictures that necessitated colostomy. Shamblein¹⁴ reviewed the cases of 195 patients treated at the Mayo Clinic, and found some degree of bowel stricture in 29. Eleven needed surgical treatment. Nine patients had a single stricture which in seven cases involved the ileum, in one the jejunum

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and in one the rectum. Four others had multiple sites of stricture.

In 1960, Abrahamson¹ reported a case in which obstructive symptoms continued more than 22 years. Over ten different diagnoses were made before surgical exploration determined the exact cause of the problem. In 1963 Jacobs⁹ reported a case in which obstruction developed in an ileal segment 32 years after orthovoltage therapy to the abdomen for a carcinoma of the testes. Gardiner,⁸ Simpson,¹⁵ Smith¹⁶ and White¹⁹ presented additional cases with long latent periods between the therapy and appearance of symptoms.

In the case here reported operation was done for an obstruction of the small bowel secondary to radiation therapy carried out nine years previously.

Report of a Case

A 55-year-old white woman was admitted to Cedars of Lebanon Hospital on October 11, 1955, with complaint of progressive abdominal swelling and pain over the preceding three weeks. She had had her last menstrual period ten years previously. The abdomen was distended but there were no palpable masses and the liver and spleen were of normal size. On pelvic examination, fullness in the adnexal areas was noted and the upper extent of the uterus was difficult to determine. No abnormalities were seen in an x-ray film of the chest. Results of examination of the blood and of liver function were within normal limits.

At operation the following morning, carcinomatosis was found involving the uterus, ovaries, tubes and the omentum. About four liters of ascitic fluid was removed. The liver was free of gross disease. Total hysterectomy, bilateral salpingo-oophorectomy and omentectomy were carried out. The pathologist reported papillary cystadenocarcinoma involving both ovaries, uterus, tubes and omentum, with nests of cells in the omentum producing psammoma bodies. The postoperative course was uneventful and the patient was discharged eight days later.

Cobalt therapy was begun October 31, 1955, at Cedars of Lebanon Hospital, using a 180 degree anterior rotation technique. Twenty-six treatments were given, a total of 3,000 roentgens tumor dose to a port, size 13 x 19 cm, with the source 70 cm from the tumor. Therapy was completed December 7, 1955.

The patient was readmitted to Cedars of Lebanon Hospital on June 21, 1964, with a history of intermittent cramps, nausea, abdominal pain and vomiting for two weeks. The hemoglobin was 13.9 gm per 100 ml, and the hematocrit was 43 per cent. Leukocytes numbered 5,700. Results of urinalysis

were within normal range. An x-ray film of the chest showed no evidence of neoplastic disease. On physical examination, abdominal distention and hyperactive peristalsis were noted. Radiographs of the abdomen were compatible with a low obstruction of the small bowel.

At operation dense adhesions were seen throughout the abdominal cavity. No evidence of recurrent carcinoma was found. The ileum and distal jejunum, grayish-white and diffusely fibrotic, formed a dense matted mass. There were multiple adhesions and the mid-ileum was completely obstructed above one of these densely adherent areas (Figure 1). The adhesions were dissected free and bowel continuity re-established. A side-tracing procedure was done because of the extensive inflammatory reaction in a large segment of terminal ileum with decided narrowing in many places. Side-to-side anastomosis of the ileum and the transverse colon above the extensively involved area was carried out, using an inner layer of gastrointestinal 3 zero chromic sutures and an outer layer of interrupted 4 zero Lembert silk sutures.

The abdomen was closed in layers. The postoperative course was uninterruptedly satisfactory and the patient was discharged July 1, 1964. At last report she was doing well.



Figure 1.—Distal jejunum and mid-ileum showing dense adhesions, thickening, and matting together with small bowel obstruction.

Discussion

The gastrointestinal tract is only less sensitive than bone marrow to irradiation therapy, the small bowel being more sensitive than the colon.⁶ The reported incidence of gastrointestinal damage and complications ranges from 1 per cent to 17 per cent with permanent problems in about 2 per cent. The use of higher supervoltage therapy and combinations with chemotherapeutic agents may increase the proportion of complications. Many factors are involved—individual variations in sensitivity, the dosage schedule and total amount, the tolerance of the tissues treated and the mode of therapy. Previous pelvic laparotomy and fixation of the bowel with adhesions can influence the complication rate, as can the weight of the patient.²¹

Brown,⁴ noting that the kind of gastrointestinal effects seen was related to how long after radiation therapy the effects became manifest, divided them into three categories: (1) Within the first six months, anorexia, abdominal cramps, nausea and vomiting, tenesmus, diarrhea, pelvic pain and mucus and blood in the stools may be seen in some form; (2) In the period from 16 to 18 months, rectal bleeding, pelvic pain, constipation or alternating or persistent diarrhea; (3) From 18 months on, pelvic pain, rectal bleeding, intestinal fistulae (entero-enteric, enterovesical or enterovaginal) and symptoms of bowel obstruction or perforation. The signs and symptoms of the first two periods do not necessarily indicate that delayed complications will appear.

Pathologically the changes range from edema and hyperemia to ulceration and stricture. The primary pathological diagnostic criteria for irradiation injury^{9,16} include hyalinization of the connected tissue, abnormal or distorted fibroblasts, telangiectasia, hyaline degeneration of the vessel walls with endarteritis and obliterative endophlebitis. The secondary criteria are those of epithelial abnormalities, phlebosclerosis, and changes in the muscle fibers which include edema, degeneration, atrophy, fibrosis and hyaline degeneration. The maximal changes after irradiation therapy usually occur in three to four weeks. They consist of hyperemia, edema and spasm. Progression can occur with vascular and connective tissue changes leading to infarction or ulceration with possible formation of fistula into the bowel, bladder or vagina and subsequent scarring fibrosis and stricture. It may take years before the obstruction is complete, making surgical intervention necessary.

Brick³ said that the injury threshold to the small bowel, at 1,000 kilovolts, was 4,000 to 4,500 roentgens. Peterson¹¹ observed that acute necrotic changes and damage can occur with 2,500 roentgens orthovoltage therapy, while 5,000 roentgens to the

retroperitoneal area will cause late irradiation injury in half of the patients treated.

The diagnosis of irradiation enteritis is one that is suggested when the symptoms of acute or chronic gastrointestinal derangements are noted in the absence of other causes. Nausea and vomiting may be present without roentgenographic evidence of obstruction. Occasionally studies of the small bowel may show hyperperistalsis with narrowing of the lumen and puddling of the barium. Laboratory tests are otherwise of little value.²¹

The treatment of late irradiation enteritis is usually conservative—a low residue, bland diet, antispasmodics, occasionally steroid therapy and time for healing. Operation is indicated in the belief of Fabrikant and coworkers,⁷ to relieve obstruction, pain, hemorrhage or fistula, or to establish a by-path in order to permit a distal lesion to heal and at the same time obtain a definite tissue diagnosis. Primary resection with end-to-end anastomosis is preferable when possible if there are areas of normal-appearing bowel proximal and distal to the involved area. Intestine which has been damaged by irradiation heals slowly and should be by-passed if there is any question of difficulty in freeing the affected area or in obtaining normal bowel for anastomosis.

Summary

Operation to relieve intestinal obstruction due to irradiation stricture and adhesions was necessary nine years after radiation therapy of carcinoma of the ovary.

The early and late sequelae of abdominal and pelvic irradiation therapy should be kept in mind, lest preoccupation with the possibility of a recurrence of the original neoplasm lead to error in diagnosis.

Irradiation stricture and enteritis is etiologically complex and not solely attributable to overdosage or technique.

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California Medicine



EDITORIAL

Medical Discipline

MEDICAL PRACTICE in California under the broad form of license issued by the Board of Medical Examiners allows each licentiate a virtual blank book of checks for his procedures. The license gives him the privilege of practicing medicine and surgery in the manner in which he wishes so long as he does not run afoul of a few basic prohibitions such as illegal abortions, narcotics peddling and the like.

The scope of authority granted under this license, as under licenses or permits granted to other professional or quasi-professional persons, places on the individual the responsibility of discharging his obligations in exemplary fashion.

Under these conditions the state looks to each profession for a system of self-discipline designed to protect the public. Forefront in the list of professions covered by state licensure is the medical profession, which long has relied on its own resources to keep its members in line with modern practices and policies.

Basically, the state is expected to look after the legal requirements of licensure, the medical profession after the ethical considerations.

Today, due possibly to a greatly increased medical population, possibly to other causes, there has developed a gray area between the strictly legal and the strictly ethical.

The law says that the performance of an abortion except under specified conditions is a criminal act and the physician who performs the procedure is subject to the loss of his professional license. All physicians understand the language and the intent of laws of this character and with few exceptions accept this proscription as a part of their obligation.

Medical ethics say that practices inimical to the welfare of patients are unethical, and an erring physician is subject to expulsion from his medical

society. Physicians also understand this and, again with few exceptions, heed it.

In between these proscriptions, however, are a number of situations or conditions which do not properly fall under the jurisdiction of either governmental or professional bodies. Who, for instance, can take steps against a physician who regularly undertakes procedures beyond his own training and skill? Who can punish or act against a physician who by virtue of mental incapacity undertakes treatments which are inimical to the public health?

Questions such as these have plagued both the medical profession and the state government for some years and still demand answers.

Today there appears a large part of the answer in a series of measures before the State Legislature. Authored by Senator Walter W. Stiern, a Bakersfield veterinarian, these bills would foster a cooperative effort by the medical profession and the State Board of Medical Examiners in enlarging the legal definition of practices contrary to law and subjecting the licentiate to disciplinary actions.

Senator Stiern's series of six legislative bills has elicited the support of the Council of the California Medical Association and apparently is well on the way to passage in the Legislature.

The basic measure calling for a cooperative effort by state and medical authorities would divide the state into five districts, with a "district review committee" in each. The committees would be composed of five members each, all appointed by the governor; three members would be named from a list of ten nominees of the organized medical societies in the district, one would come from ten or more nominees of the State Board of Medical Examiners, and one would come from the faculty of a clinical department of an approved medical school.

Each district review committee would consider cases referred to it by the Board of Medical Examiners and would reach decisions or recommendations for board action. The Board could affirm, modify or dismiss the committee's decision or return the case to the committee for further study.

Accompanying this measure are companion bills which would add gross negligence, gross incompetence and gross immorality to the list of items for which medical licentiates can be subjected to discipline. Physicians serving on the district review committees would also be granted immunity from civil actions that might arise from their committee activities.

Taken as a whole, Senator Stiern's proposals would set up official review bodies, composed of medical licentiates, with authority to review alleged misdeeds by physicians and to report their findings to state authorities that have legal authority to take action against violators.

While the CMA, through its Council, has given its blessing to this legislative approach to medical discipline, some few members express disagreement. Their contention is that only a small minority of physicians would be affected by these laws and that broad laws covering all physicians are not needed to control the few.

The same might be said for any laws now on the statute books. Only a minute minority of the popu-

lations commits murder or robs banks, yet laws are needed to protect the public from their misdeeds.

If the medical profession expects to retain discipline over its own members, the measures now before the State Legislature offer an avenue of approach which is at once effective and dignified. Where legal jurisdiction has been lacking in the past, these laws will confer a degree of legal authority on the review committees. At the same time they will give legal immunity to committee members who seek to fulfill their committee responsibilities capably and will add several conditions to those already named in the laws as subject to disciplinary action.

The Stiern bills will apparently help to close the gap between governmental and medical society disciplinary areas and make it possible to protect the public against those few licentiates who by design or misfortune engage in practices contrary to the public interest. The fewer these instances, the better. However, the maintenance of machinery to deal with those cases that do come along is definitely in the public interest and deserving of medical support.



The President's Page



THE PROGRESSIVE SHIFT of social responsibility to our federal government and the growing trend to produce changes in our social structures by actions of the U.S. Congress and U.S. Supreme Court is a central fact of our time. The physicians of America have become increasingly aware of this trend in the past few years but the trend for them has been brought into sharp focus by the public hearings before the Finance Committee of the U.S. Senate on the provisions of the Social Security Amendments Act of 1965, H.R. 6675, popularly called "Medicare."

The "Medicare" provisions are only one part of the included subject matter of the bill, but they have received nearly all the attention of the witnesses before the committee. These provisions propose a system of hospital benefits for all persons 65 and older, financed on a compulsory payroll tax basis, and a supplemental health benefits plan for the same age group, financed by a contribution from the beneficiary and matched by a contribution from general tax resources of the government. The obvious result will be a nationalized health care insurance system, with little or no opportunity for survival, of any form of health care insurance for this age group in "the private sector" of our dynamic and highly effective voluntary insurance system.

The Senate Finance Committee hearings were scheduled over a period of about three weeks in May. Many organizations and many persons asked to be heard and were given time. The hearings were held from 10 to 12 each morning and each witness was allotted 10 minutes for oral testimony, followed by an opportunity for questions by the committee.

The results during the hearings were monotonously similar. In spite of strong and intelligent support from a few members of the committee, such as Sen. Carl Curtis and Sen. Wallace Bennett, the majority of the committee appeared to be disinterested, or preoccupied with multiple other responsibilities, including civil rights legislation. Witnesses generally were treated with politeness and courtesy, but committee members wandered in and out of the hearings: rarely was a majority of the committee pres-

ent and on several occasions only two or three members of the committee remained to hear any of the testimony. Most of the hearings were chaired by Sen. Clinton Anderson, author of the King-Anderson proposals in the bill. Senator Anderson obviously took great pleasure in addressing pointed questions which could embarrass or discredit witnesses for medical associations and their friends.

Press representatives, while present at many of the hearings, also appeared disinterested and gave very little coverage to the discussions.

The impression of responsible and experienced observers was that the public hearings were being held out of politeness and were not likely to result in significant changes or in reconsideration of the major provisions of the proposals. The decisions probably would be made in closed sessions, largely dictated by political expediency and pressures from the executive arm of the government. They would be colored by concern over the future costs of the program and the possible political advisability of increasing tax burdens on the voters. The vast and significant change in social orientation and organization, the serious and far-reaching effects on quality and availability of medical care and the deep concern of physicians as to future inferior patterns of care were conceded, but seemed to find only limited response or interest from the committee or even from the American public. The general consensus appeared to be that some form of the existing proposals would be enacted by the Congress and would become law.

There was a wide-spread undercurrent of feeling that physicians must now endure the present developments patiently and be as helpful as they are permitted to be in guiding the development of administrative regulations, while making every effort to safeguard the existing voluntary system, including voluntary cooperative control of quality and utilization. It also was felt that physicians must reserve and safeguard their strength and their vast reservoir of public good will for a more favorable time in the future.

Ralph C. Teall



California Medical Association

NOTICES AND REPORTS

Actions of the House of Delegates

San Francisco, March 27 to 31, 1965

NOTE: *The following report of the transactions of the House of Delegates of the California Medical Association is selected and abridged. A complete transcript of all proceedings is on file in the Association office in San Francisco and available for the inspection of all members.*

REFERENCE COMMITTEES

COMMITTEES APPOINTED by Speaker William F. Quinn at the first meeting of the House of Delegates Saturday evening, March 27, were as follows:

Committee on Credentials: John R. Peterson, Riverside, chairman. A through L component societies: Thomas Elmendorf, Willows; Theodore S. Goldman, Beverly Hills; Walter W. Hopps, Jr., Los Angeles, and A. J. Murrieta, Los Angeles.

M through Z component societies: George Herzog, San Francisco; Dorothy J. Marsh, Glendale; Harold Wilkins, Downey, and James H. Yant, Sacramento.

Reference Committee 1. (This committee reviews the reports of the officers, the Council, the commissions, and standing and special committees.) Clarence T. Halburg, Jr., Redlands, chairman; John A. Bullis, Los Angeles; Paul C. Doehring, Glendale; Oscar Hills, San Mateo, and Stanley Kirk, Paso Robles.

Reference Committee 2. (This committee on finance reviews the reports of the secretary, executive secretary and studies and makes recommenda-

tions to the House of Delegates on the budget submitted by the Council and the amount of dues for the ensuing year.) Walter F. Carpenter, San Diego, chairman; Donald J. Barry, Arcadia; Norman C. Fox, San Bruno; Carl Horn, Sacramento, and A. B. Sirbu, San Francisco.

Reference Committee 3. (This committee considers new and miscellaneous business.) Joseph F. Boyle, Los Angeles, chairman; Robert Hippen, San Diego; Charles B. Hudson, Oakland; Frank H. Robinson, Chula Vista, and Horace Sharrocks, Sebastopol.

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Reference Committee 3A. (To consider business of Committee 3 when the volume becomes too great for one committee to handle.) A. Justin Williams, San Francisco, chairman; Leonard Asher, Beverly Hills; M. M. Haskell, Long Beach; William K. Hokr, San Diego, and H. Dean Hoskins, Oakland.

Reference Committee 3B. (This committee also is a supplement to 3 and 3A.) Nicholas V. Oddo, Long Beach, chairman; Henry Gibbons, III, San Francisco; Daniel G. Morton, Los Angeles, and J. B. Price, Santa Ana.

Reference Committee 4. (This committee considers amendments to the Constitution and Bylaws). Robert L. Watson, Jr., Los Angeles, chairman; Robert L. Day, Bakersfield; Chester E. Herrod, San Francisco; Ralph M. King, La Mesa, and Frank Paxton, Glendale.

PRESENTATION OF FIFTY-YEAR AWARDS

Pins commemorative of 50 years of membership in the California Medical Association have been

presented to the following physicians: Daniel I. Aller, Fresno; Elbridge J. Best, San Francisco; C. S. Brooks, Imperial; Linwood Dozier, San Joaquin; Ralph W. Homer, Ventura; Warren T. McNeil, San Joaquin; Walter F. Mosher, Ventura; Harold B. Osborn, Ventura; Russell C. Ryan, San Francisco.

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WOMAN'S AUXILIARY

Mrs. Lyle F. Murphy, president of the Woman's Auxiliary, reported on the activities in her year of tenure.

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MISCELLANEOUS ANNOUNCEMENTS

Plaques were presented to past-chairmen of the Medical Executives Conference: John Hunton, 1945-59, CMA; Bill Scheuber, 1959-60, Alameda-Contra Costa; Bob Wood, 1960-61, San Mateo; Bill Nute, 1961-62, San Diego; Boyd Thompson, 1962-63, San Joaquin; Joe Donovan, 1963-64, Santa Clara; Everett Bannister, 1964-65, Orange.

ACTION ON RESOLUTIONS

SEVENTY RESOLUTIONS came before the 1965 House of Delegates. Each was numbered and assigned to a Reference Committee for consideration and recommendation.

Reference Committees have the option of recommending a resolution for adoption or rejection, for adoption as amended or substituted, or for no action.

Resolutions shown here are in the form in which the House of Delegates approved them for adoption or for referral to the Council or to specified commissions or committees. Where a resolution was not adopted, that report is made here but the language of the resolution is not shown. Copies are available in the CMA office on request.

Each resolution is shown by number and subject and the name and status of each author is recorded. Where House of Delegates action encompassed more than one resolution, footnotes give reference to all items covered by a single action.

CPS PAYMENTS

Resolution No. 1-65 **Committee CPS**
Introduced by: San Francisco Medical Society

WHEREAS, the founders of California Physicians' Service established that there should be no discrimination in payments to member and non-member physicians; and

WHEREAS, the wholly owned subsidiary of CPS—the CPIC—which was established by the California Medical Association to write major medical insurance has established contracts which are discriminatory against the member physicians favoring the non-member physicians; and

WHEREAS, this discrimination is evidenced by the non-member physician receiving the base payment plus the major medical payment, while the member physician is held to the base contract only; and

WHEREAS, 82 per cent of practicing physicians in the State of California are member physicians; and

WHEREAS, all avenues of approach have been attempted short of asking for mass resignation of the member to get CPS and CPIC to correct this inequity; now, therefore, be it

Resolved: That CMA, the parent of both, admonish CPS and CPIC and order them to correct this inequity by directing its sales personnel to stop selling the discriminatory contracts.

ACTION: *Referred to CMA-CPS Liaison Committee.*

TRAFFIC SAFETY

Resolution No. 2-65 **Committee 3**
Introduced by: San Francisco Medical Society

WHEREAS, any means of reducing the rate of injury and fatality on the highway is of concern to medicine and the public; and

WHEREAS, rear-end automobile collisions account for many injuries; and

WHEREAS, any means which would warn the driver of the following car sooner of the possible change of intent, particularly slowing or stopping of the driver of the automobile in front, would lessen the chances of collision; now, therefore, be it

Resolved: That the CMA favors the suggestion that a yellow caution light be installed on the rear of automobiles that will illuminate when the throttle is in the idle position and turn off when the brake is applied and the red stop light activated; and be it further

Resolved: That copies of this resolution be forwarded to the Highway Transportation Agency, Sacramento, the Chairman, Senate Transportation Committee, Sacramento, and the Chairman, Assembly Transportation Committee, Sacramento.

ACTION: *Referred to Committee on Traffic Safety for study. (See also Resolution No. 5-65.)*

CARDIAC RESUSCITATION INSTRUCTION

Resolution No. 3-65 **Committee 3**
Introduced by: Leon P. Fox, M.D.
Representing: Santa Clara County Medical Society

WHEREAS, several efforts are being made to promote instruction of non-medical rescue personnel in the handling of emergency cardiac arrest problems; and

WHEREAS, any intelligent management of this relatively rare condition requires an astute diagnosis which is possible only by a physician; and

WHEREAS, the serious complications pursuant to improperly administered resuscitation efforts often are more fatal than the apparent cardiac arrest; now, therefore, be it

Resolved: Instruction in emergency cardiac resuscitation should be conducted only by full qualified physicians. Such instruction may properly be provided to medical, paramedical and selected professional rescue personnel (those lay persons who may be called upon to give emergency aid as a part

of their daily work). Closed chest cardiac resuscitation techniques are not usefully taught to the average lay person.

ACTION: *Substitute resolution as above adopted by House.*

CONTINUITY OF COVERAGE

Resolution No. 4-65 **Committee 3A**

Introduced by: San Francisco Medical Society

WHEREAS, continuity of coverage of health and accident insurance is sometimes lost up to six months when group or individual policies change insurance carriers for whatever reason; and

WHEREAS, this hiatus in health and accident insurance coverage has at times been a detriment to quality medical care of the group or individual and creates economic hardship for those involved; now, therefore, be it

Resolved: That the Bureau of Research & Planning investigate the frequency and severity of the problem of loss of insurance and that it refer its finding to the Council for appropriate action.

ACTION: *Substitute resolution as above adopted by House.*

SEAT BELTS

Resolution No. 5-65 **Committee 3**

Introduced by: San Francisco Medical Society

WHEREAS, people are injured or killed every year in the State of California as a result of buses running off roads, being involved in collisions and overturning; and

WHEREAS, the majority of these accidents involve small G factors, and

WHEREAS, the usual injuries result from being tumbled about inside the bus; now, therefore, be it

Resolved: That commercial buses with a carrying capacity of ten (10) or more persons and engaged in inter-city transportation within the State of California be equipped with safety belts for driver and passengers.

ACTION: *Referred to Committee on Traffic Safety for Study.*

HOSPITAL UTILIZATION COMMITTEES

Resolution No. 6-65 **Committee 3**

Introduced by: San Francisco Medical Society

WHEREAS, Section 6 on Hospital Utilization Committee in the CMA Guiding Principles for Physician-Hospital Relationships has led to a variety of problems, particularly in the field of insurance mediation; and

WHEREAS, the Utilization Committee of a hospital is not the appropriate body to become involved in insurance mediation; now, therefore, be it

Resolved: That problems of insurance mediation are not a proper function of hospital utilization committees and should be referred to already existing insurance mediation committees, or their equivalents, of the component medical societies of the State; and be it further

Resolved: That the Council of the CMA be requested to examine the matter of hospital utilization committees and to prepare guidelines for hospital staffs to use in identifying the proper function of such committees.

ACTION: *Amended resolution as above adopted by House.*

REVISED INSURANCE FORMS

Resolution No. 7-65 **Committee 3A**

Introduced by: Leon F. Fox, M.D.

Representing: Santa Clara County

WHEREAS, the California Medical Association and the Health Insurance Council have previously agreed upon and approved of abbreviated insurance forms which have been very beneficial to the physicians of this state; and

WHEREAS, insurance companies are beginning the use of detailed automated data processing forms which will make the present forms obsolete; now, therefore, be it

Resolved: That the Council of the California Medical Association request the appropriate committee to continue its consultation with the Health Insurance Council in order to achieve periodic updating of the form presently in use, and in order to conform with modernization and, particularly, simplification. And be it further

Resolved: That the California Medical Association affirm the propriety of charging third parties for additional reporting services when requested, as provided in the current Relative Value Studies.

ACTION: *Resolutions No. 7-65 and No. 11-65 combined in substitute resolution as above and adopted by House.*

OPPOSING SOCIALISM

Resolution No. 8-65 **Committee 3**

Introduced by: Thomas N. Foster, M.D.

Representing: Santa Clara County

WHEREAS, there are large untapped reservoirs of opposition to socialism which are presently ineffectual because of lack of leadership; now, therefore, be it

Resolved: That the CMA requests AMPAC to assume the initiative in a program that will effectively unite those who oppose socialism. Such a program shall be primarily concerned with, but not limited to, public information and education by means of mass media.

Emphasis shall be placed upon the virtues of a freely competitive society as the means of ultimately assuring better living for all—in contrast to the destruction of initiative, decreased productivity and confiscatory taxation consequent to socialism.

ACTION: Amended as above and adopted by House.

HEALTH INSURANCE

Resolution No. 9-65 Committee 3A

Introduced by: Norman C. Fox, M.D.

Representing: San Mateo County

WHEREAS, many insurance programs are still inadequate; and

WHEREAS, the physicians at the local level could be extremely helpful advising as to an adequate medical program; now, therefore, be it

Resolved: That the California Medical Association study the possibility of local county medical society committees who would offer their services in an advisory capacity when health insurance programs were being initiated or revised and/or negotiated at the local level.

ACTION: Amended as above and adopted by House.

FREEDOM OF CHOICE

Resolution No. 10-65 Committee 3A

Introduced by: Norman C. Fox, M.D.

Representing: San Mateo County

WHEREAS, a cornerstone of high quality medical care is the doctor-patient relationship; and

WHEREAS, this relationship can best be maintained by free choice of physician; now, therefore, be it

Resolved: That the California Medical Association state publicly and when acting in an official or advisory capacity, that any adequate medical care program should guarantee the right of the patient to free choice of physician.

ACTION: Amended as above and adopted by House.

INSURANCE FORMS

Resolution No. 11-65 Committee 3A

Introduced by: Norman C. Fox, M.D.

Representing: San Mateo County

ACTION: See Resolution No. 7-65.

SEPARATION OF MEDICAL & ADMINISTRATIVE COSTS

Resolution No. 12-65

Committee 3A

Introduced by: Norman C. Fox, M.D.

Representing: San Mateo County

ACTION: Not adopted by House.

SYMPOSIA OF MEDICAL DISCIPLINE

Resolution No. 13-65

Committee 3

Introduced by: C. G. Scarborough, M.D.

Representing: Santa Clara County

WHEREAS, numerous problems concerning medical discipline confront local medical society grievance and membership committees and hospital staff credentials committees; and

WHEREAS, there are many legal implications and legal fears concerning discipline by medical societies and concerning hospital staff membership and privileges; and

WHEREAS, a free and factual exploration of local disciplinary problems and the legal entanglements which may possibly be incurred by local medical societies and hospital staffs would be desirable and tremendously helpful; now, therefore, be it

Resolved: 1. That the California Medical Association, in cooperation with individual local medical societies or with groups of societies on an area basis, present symposia exploring the problems of local medical and hospital discipline, and

2. That California Medical Association move forward promptly in the hope that some of these symposia may be held in 1965.

ACTION: Adopted by House.

CORONER-MEDICAL EXAMINER

Resolution No. 14-65

Committee 3

Introduced by: Los Angeles Delegation

WHEREAS, there are many unresolved problems concerning the cause and mechanism of death which confront the Coroner-Medical Examiner daily; and

WHEREAS, the solution of these unresolved problems require human tissue for scientific analysis and investigation; and

WHEREAS, the present law does not authorize the Coroner-Medical Examiner to retain human tissue necessary for scientific investigation and verification of his findings, and for the determination of unresolved problems, which must be solved; and

WHEREAS, the solution of all unresolved problems relating to the cause and mechanism of death are vital to the public health and interest; now, therefore, be it

Resolved: That the House of Delegates of the California Medical Association, instruct the Legislative Committee of the California Medical Association, to draft and propose an amendment to the Government Code of the State of California, to authorize the Coroner-Medical Examiner to retain such tissues of the human body, removed at the time of autopsy, as may, in his opinion, be necessary or required for scientific investigation or for verification of his findings.

The exact wording of said amendment to be drafted by the Legislative Committee.

ACTION: Adopted by House.

COUGH COMPOUNDS—PRESCRIPTION

Resolution No. 15-65

Committee 3

Introduced by: Los Angeles Delegation

WHEREAS, compound cough mixtures containing narcotics are available without prescription; and

WHEREAS, law enforcement agencies of the State have documented that the use of such available compound cough mixtures containing narcotics has created a medical and law enforcement problem, particularly with juveniles; and

WHEREAS, such simple compound cough mixtures should be readily available to patients; now therefore, be it

Resolved: That the California Medical Association, through its Legislative Committee, support legislation which has been introduced into the State Legislature, which would make compound cough mixtures containing narcotics available on prescription only; and be it further

Resolved: That such legislation provide that documented telephone authorization from a physician is sufficient for the sale and issuance of such compound cough mixtures containing narcotics.

ACTION: Adopted by House.

CALIFORNIA PHYSICIANS' SERVICE

Resolution No. 16-65

Committee CPS

Introduced by: Los Angeles Delegation

WHEREAS, CPS has been active in eliminating "A" and "B" fee schedules; and

WHEREAS, the term sub-standard, as used by CPS, has not been defined; and

WHEREAS, there is an ever increasing inflation with a subsequent need to upgrade rather than downgrade CPS fee schedules; and

WHEREAS, the physicians of California will be in negotiation with State and Federal governments on fee schedules; now, therefore, be it

Resolved: That a CPS sub-standard fee schedule not be approved by the California Medical Association House of Delegates.

ACTION: Adopted by House.

STANDARD WELFARE MEDICAL REPORT FORMS

Resolution No. 17-65

Committee 3A

Introduced by: Los Angeles Delegation

WHEREAS, there exists a multiplicity of welfare health agencies, each with its own medical report form; and

WHEREAS, the completion of such multiple medical report forms has become an intolerable burden upon the physician; and

WHEREAS, standard medical report forms have been adopted by the health insurance underwriters; now, therefore, be it

Resolved: That the Council of the California Medical Association attempt to determine the feasibility of having the various health and welfare agencies adopt a standard and uniform medical report form.

ACTION: Substitute resolution as above referred to Council for further study.

USAGE OF LYSERGIC DIETHYLAMIDE

Resolution No. 18-65

Committee 3

Introduced by: Los Angeles Delegation

WHEREAS, it is noted that the Council of the Southern California Psychiatric Society has approved the following conclusions and recommendations concerning the usage of Lysergic Diethylamide:

"1. The medical and scientific literature indicate and our consultants in psychopharmacology believe that as yet there is no reliable proof that Lysergic Acid Diethylamide is a reliable adjunct in psychotherapy.

"2. We believe that studies of this drug should be done only by qualified investigators in a research hospital setting to prove or disprove the hypothesis sincerely held by some that Lysergic Acid Diethylamide is a safe adjunct to psychotherapy.

"3. We are of the opinion that the enthusiasm of some for the effectiveness of this drug is unwarranted at this time and should be questioned.

"4. We deplore the situation where sensationalism and minimizing serious dangers has taken the place of scientific evaluation.

"5. We emphasize that Lysergic Acid Diethylamide remains in the status of an investigational drug."
—and,

WHEREAS, the conclusions and recommendations of the Southern California Psychiatric Society have been endorsed and approved by the Beverly Hills District of the Los Angeles County Medical Association; now, therefore, be it

Resolved: That the Delegates of the California Medical Association adopt the conclusions and recommendations of the Southern California Psychiatric Society and go on record as being opposed to the use of Lysergic Acid Diethylamide except by qualified investigators in accredited research facilities.

ACTION: *Referred to CMA Committee on Mental Health and CMA Committee on Dangerous Drugs for study.*

COMMISSION ON MEDICAL ECONOMICS

Resolution No. 19-65

Committee 3A

Introduced by: Tenth District

WHEREAS, a search for solutions to the economic problems involved in the distribution of medical care remains a critical issue with both the American public and the medical profession; and

WHEREAS, currently there is no one authoritative commission or committee designated to assume this overwhelmingly important function and responsibility; now, therefore, be it

Resolved: That a Commission on Medical Economics be established. Said commission to be charged with the following duties and responsibilities.

1. To accumulate data both domestic and foreign on methods of distributing and financing medical care.
2. To carry on a continuing evaluation of the varied and various plans now in operation.
3. To formulate, advise and sponsor new concepts in financing medical care.
4. To study the needs of various population groups in so far as methods of medical financing are concerned.
5. To stimulate new foundation concepts.
6. To stimulate new insurance concepts.
7. To provide data to interested consumers and producers of medical care as to the advantages and disadvantages and the relative costs of different types of finance plans.
8. To be available at all times upon request to make suggestions and/or recommendations and furnish necessary technical assistance and/or staff to component medical societies desirous of establishing new medical plans.
9. In essence the commission is to serve as an authoritative specialist both in research and the

practical application of the problems involved in the financing of medical care.

ACTION: *Referred to Council for further study.*

WELFARE PAYMENTS

Resolution No. 20-65

Committee 3A

Introduced by: Alameda-Contra Costa

Resolved: That the California Medical Association urge the State Social Welfare Department that patients or relatives be permitted to pay to physicians, convalescent hospitals, rest homes and pharmacies the difference between payments made by the Welfare Department and the usual, normal and customary costs for the services rendered by physicians, convalescent hospitals, rest homes and pharmacies under medical programs administered by the Social Welfare Department.

ACTION: *Adopted by House.*

CPS DEDUCTIBLES FOR OUTPATIENT CARE

Resolution No. 21-65

Committee CPS

Introduced by: Alameda-Contra Costa

WHEREAS, CPS contracts now include one or two visit deductibles for outpatient care of new illness; and

WHEREAS, it is often difficult and sometimes impossible to say whether the physician is providing care primarily for a new illness or an old one; and

WHEREAS, CPS contracts now include benefits for out-patient x-ray and laboratory services beginning with the first visit; and

WHEREAS, depending on the nature of the illness and the service given, the cost of professional services during the first two visits may vary from \$5 to \$50 or more; and

WHEREAS, CPS subscribers should receive logical, equitable and predictable coverage for medical care; now, therefore, be it

Resolved: That future CPS contracts attempt, wherever possible, to eliminate one and two-visit deductibles and replace the deductible feature with unit or specific dollar deductibles that would not materially change the rate structure.

ACTION: *Amended resolution, as above, adopted by House.*

INSURANCE FOR SPORTS INJURIES

Resolution No. 22-65

Committee 3

Introduced by: Alameda-Contra Costa

WHEREAS, a number of high schools in California now require students participating in sports to pur-

chase health and accident insurance policies specified by the schools; and

WHEREAS, many of these students are already adequately covered by health insurance purchased by their families; now, therefore, be it

Resolved: That the California Medical Association recommend to the State Superintendent of Schools that students who are already adequately covered by health insurance should not be required to purchase additional insurance before being permitted to participate in sports.

ACTION: *Referred to Committee on Medical Aspects of Sports for study.*

FREE CHOICE OF PHYSICIANS IN RETIREMENT COMMUNITIES

Resolution No. 23-65 Committee 3A

Introduced by: Alameda-Contra Costa

WHEREAS, a number of new retirement communities provide mandatory medical care plans which specify a limited choice of physicians and medical facilities; and

WHEREAS, this is not in the best interests of the patients who reside in retirement communities; now, therefore, be it

Resolved: That the California Medical Association urge retirement communities which provide medical care plans to offer residents the option of accepting either the provided facilities or services in the community at large.

ACTION: *Amended resolution as above adopted by House.*

INSURANCE COVERAGE FOR INTENSIVE HOSPITAL CARE

Resolution No. 24-65 Committee 3A

Introduced by: Alameda-Contra Costa

Resolved: That all insurance carriers be urged to include in their contracts full benefits for private or intensive care hospital accommodations for patients when such accommodations are essential for proper medical care.

ACTION: *Amended resolution as above adopted by House.*

PAYMENTS TO CHIROPRACTORS FOR MEDICAL CARE

Resolution No. 25-65 Committee 3

Introduced by: Alameda-Contra Costa

Resolved: That in order to enhance the quality of medical care provided to state Public Assistance Medical Care recipients the California Medical Association House of Delegates urges the State Social

Welfare Department and the Legislature of the State of California to cease payments to chiropractors of fees for medical services which they are not legally permitted to perform.

ACTION: *Adopted by House.*

COMMENDATION OF CMA AD HOC COMMITTEE ON MEDICAL DISCIPLINE

Resolution No. 26-65 Committee 3

Introduced by: Alameda-Contra Costa

Resolved: That the California Medical Association ad hoc Committee on Medical Discipline be commended for the excellent work done and progress achieved in analyzing the problems of medical discipline faced by the California State Board of Medical Examiners.

ACTION: *Adopted by House.*

DISABILITY BENEFITS

Resolution No. 27-65 Committee 3A

Introduced by: Alameda-Contra Costa

WHEREAS, benefits for medical disability are paid by many insurance mechanisms and government agencies; and

WHEREAS, there is wide variation in the medical standards and administrative criteria now used in judging claims for disability benefits, and

WHEREAS, this variation is confusing and at times inequitable, now, therefore, be it

Resolved: That the California Medical Association study and clarify medical standards of disability.

ACTION: *Substitute resolution as above adopted by House and referred to Council for assignment to appropriate committee.*

STUDY COMMITTEE ON BLOOD ALCOHOL TESTING

Resolution No. 28-65 Committee 3

Introduced by: San Mateo County Medical Society

WHEREAS, there is increasing carnage on our highways related to the use of intoxicants; and

WHEREAS, law enforcement officials have stated a need for the use of chemical tests to determine levels of intoxication; now, therefore, be it

Resolved: That the California Medical Association appoint a Study Committee to evaluate the chemical tests for intoxication and make recommendations as to the type of tests to be used and their interpretation with regard to safe operation of a motor vehicle.

ACTION: *Adopted by House and referred to Scientific Board for implementation.*

ACTIVITIES OF CALPAC

Resolution No. 29-65

Committee 3A

Introduced by: Herbert L. Burrows

Representing: Los Angeles

ACTION: *Not adopted by House.*

VENDOR SYSTEM BUREAU OF PUBLIC ASSISTANCE

Resolution No. 30-65

Committee 3A

Introduced by: Herbert L. Burrows

Representing: Los Angeles

WHEREAS, the system can only be justified as a means to obtain medical services by the State at a discount; and

WHEREAS, the payment of "usual and customary" fees would eliminate the need for this system; and

WHEREAS, the elimination of the system would remove restrictions from the patients as to the free choice of physicians; and

WHEREAS, the elimination of the system would free the medical profession from threat of restrictive control based upon political expediency; now, therefore, be it

Resolved: That the House of Delegates of the California Medical Association reaffirm its support of the concept of usual, customary and reasonable fees to providers of professional services; and be it further

Resolved: That in view of the active support by this Association for the Casey Bill (AB 760, which implements the California Plan for Medical Assistance to the Aged), and in view of other developments which will have an effect upon the vendor system of payments, consideration of this subject be referred to Council for further study.

ACTION: *Substitute resolution as above adopted by House and referred to Council for further study.*

"PRE-EXISTING ILLNESS"

Resolution No. 31-65

Committee 3A

Introduced by: Herbert L. Burrows, M.D.

Representing: Los Angeles

WHEREAS, the term "pre-existing illness" when used in health insurance, particularly those policies sold to the elderly, is a vague and general term; and

WHEREAS, this term can be used to evade legitimate claims by insurance companies; and

WHEREAS, this limitation only confuses and misleads the purchasers of these policies; now, therefore, be it

Resolved: That the problems called to the attention of this House be referred to the Council for

study and implementation, with a report made to this House of Delegates at its next Annual Meeting.

ACTION: *Amended resolution as above adopted by House.*

OVER 65 HEALTH INSURANCE

Resolution No. 32-65

Committee 3A

Introduced by: Julien H. Isaacs and Theodore Goldman

Representing: Los Angeles

WHEREAS, the Medicare Plan for individuals 65 and over, as currently conceived, (1) may become the law of the land in the near future, (2) provides inadequate or no benefits for physicians and surgeons services, for out-patient lab and x-ray tests in physician's offices, for drugs, appliances and other forms of therapy, and (3) may, as demonstrated by the recent order cutting back services and covered drugs for the California OAS medical care plan, deteriorate its coverage as expenses increase; now, therefore, be it

Resolved: That the Council of the California Medical Association encourage development of a plan of supplementary medical care benefits which will overcome the gaps and deficiencies of proposed federal legislation when passage of such a law appears to be imminent.

ACTION: *Substitute resolution as above referred to Council for further study. (Note: a second portion of original resolution, offering new definitions of "usual," "customary" and "reasonable" not adopted by House.)*

INSURANCE COVERAGE BENEFITS

Resolution No. 33-65

Committee 3A

Introduced by: Julien H. Isaacs and Theodore Goldman

Representing: Los Angeles

WHEREAS, (1) experience has demonstrated that current insurance coverage benefits for individuals and families in California is inadequate and unrealistic, and

(2) a long delay is the rule between submitting an insurance claim for medical benefits and payment of this claim to the insured; and

(3) the individual insured is penalized if he is slow or forgets to make his premium payment on time, and no such penalty applies to the insurance carrier, and

(4) the majority of individuals insured for medical benefits receive inadequate benefits when needed most; now, therefore, be it

Resolved: That the Insurance Committee of the CMA make every effort to secure from the insurance industry, from the Insurance Commissioner, and the State Legislature, a single type of medical

care insurance coverage for all individuals insured for medical services and providing adequate and realistic coverage for in- and out-patient services of all kinds; and be it further

Resolved: That this single type medical care policy, (1) provide for pre-existing illness, and (2) provide each insured with an identification card, stating (a) major benefits and exclusions, and (b) effective until (date), and (3) provide some penalty for slow paying and unresponding insurance carriers, and (4) be made available for all residents of California.

ACTION: *Referred to Council for further study.*

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INSURANCE CLAIMS CLEARING HOUSE

Resolution No. 34-65

Committee 3A

Introduced by: Julien H. Isaacs and Theodore Goldman
Representing: Los Angeles

WHEREAS, (1) there is, at present, no organization acting as an intermediary between the physicians and/or his patient and the insurance carrier to hasten and improve medical benefit payments and to improve relationships and understanding between all three parties; and

(2) the physician, as an interested party in hastening and improving insurance payments to the insured, has no such legal channel for this purpose; now, therefore, be it

Resolved: That the CMA investigate establishing a central bureau for accumulation of records (the physician will submit all insurance claims through this bureau and the insurance company will submit copies of all correspondence and payments) and for acting as an intermediary between the physician, the insured, and the insurance carrier.

ACTION: *Referred to Council for further study.*

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PRIVATE PRACTICE OF STATE EMPLOYED PROFESSORS

Resolution No. 35-65

Committee 3

Introduced by: Theodore H. Goldman
Representing: Los Angeles

ACTION: *Withdrawn by author.*

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NARCOTIC ADDICTION

Resolution No. 36-65

Committee 3

Introduced by: Marin Medical Society

WHEREAS, according to the State Attorney General, narcotic addiction is the 8th leading illness in California; and

WHEREAS, treatment of this illness is presently confined to the purview of criminal statutes and law

enforcement agencies and has been for the past 50 years; and

WHEREAS, concepts of medical treatment and rehabilitation have progressed substantially in the past 50 years; and

WHEREAS, California is uniquely situated by reason of high incidence, geographical proximity to drug traffic centers, the high calibre of medical facilities, and enlightened social outlook; now therefore, be it

Resolved: That CMA continue its efforts to improve understanding, prevention and treatment of drug addiction and rehabilitation of drug addicts and that the Committee on Continuing Education be requested to consider programs which will improve the education of physicians on all aspects of drug addiction and that the Council be requested to obtain from an appropriate committee an opinion as to whether or not changes in existing statutes are desirable.

ACTION: *Substitute resolution as above adopted by House.*

‘ ‘ ‘

DEPRESSION EDUCATION

Resolution No. 37-65

Committee 3

Introduced by: Marin Medical Society

WHEREAS, depression is one of the most, if not the most, common condition encountered in medical practice; and

WHEREAS, the modern treatment of depressions is so effective, that many suicides now could be prevented; and

WHEREAS, many somatic illnesses especially in persons of middle age represent the somatic equivalents of depression; now, therefore, be it

Resolved: That the CMA encourage more widespread dissemination of knowledge of the treatment of depressions through post-graduate education.

ACTION: *Adopted by House and referred to Scientific Board for implementation.*

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SUICIDE STUDY

Resolution No. 38-65

Committee 3

Introduced by: Marin Medical Society

WHEREAS, suicide is the tenth leading cause of death nationally and the seventh leading cause of death in California, the fifth leading cause in San Francisco and the second leading cause in college students; and

WHEREAS, a significant proportion of accidental and other deaths may represent hidden suicides; and

WHEREAS, many insurance companies would benefit from more accurate death diagnosis; now, therefore, be it

Resolved: That the CMA (1) launch a statistical and etiological survey in collaboration with insurance companies within the state in order to more clearly identify the hidden suicide, (2) urge the broadening of insurance coverage to cover outpatient and in-patient diagnosis and treatment of all mental-emotional illnesses, including depression.

ACTION: *Referred to Committee on Mental Health for study.*

LABELING REQUIREMENTS

Resolution No. 39-65 **Committee 3**
Introduced by: Marin Medical Society

WHEREAS, the present labeling requirements on drugs in some instances do not allow for the use of the physician's knowledge and discretion (for example: Thorotrast, labeled "For animal experimentation only"), thereby in an occasional instance, handicapping the physician in the care of his patient; now, therefore, be it

Resolved: That the proper committees of the CMA and the California Delegates to the AMA be instructed to use their influence to assure that warnings on drug safety be informative and admonitory rather than restrictive.

ACTION: *Adopted by House.*

FINANCING MEDICAL CARE

Resolution No. 40-65 **Committee 3A**
Introduced by: Marin Medical Society

WHEREAS, because of the rising costs of ever improving medical care, many Americans of all ages are faced with problems concerning its financing; and

WHEREAS, the CMA recognizes that any program for medical care should eventually include people of all ages; and

WHEREAS, voluntary prepayment plans are an effective and established means for financing medical care and such plans have great potential for expansion and improvement; and

WHEREAS, the role and obligation of organized medicine is to encourage legislation which improves the availability of medical care to people of all ages; now, therefore, be it

Resolved: That the CMA study the problem of financing medical care for individuals of all ages and advance suggestions to the AMA within the year for a program of medical care for Americans of all ages utilizing the voluntary prepayment ma-

chinery of the private insurance industry with financial support from the government where it is deemed advisable, using as a model the AMA Eldercare Program.

ACTION: *Referred to delegation to American Medical Association for information and to Bureau of Research and Planning for further study.*

REGIONAL HOSPITAL PLANNING COUNCIL SUPPORT

Resolution No. 41-65 **Committee 3**
Introduced by: Tenth District

Resolved: That the component societies of the CMA be urged to provide financial support for the voluntary regional hospital planning councils to the degree that they are able and that the Council study the question of whether or not CMA can provide additional assistance if local societies are unable to meet this need.

ACTION: *Substitute resolution as above adopted by House.*

SURVEY OF HOSPITAL MEDICAL STAFF ACTIVITIES UNDER THE "GUIDING PRINCIPLES FOR PHYSICIAN-HOSPITAL RELATIONSHIPS"

Resolution No. 42-65 **Committee 3**
Introduced by: James C. MacLaggan, M.D.
Representing: Councilor

WHEREAS, medical research programs continue to highlight the importance of strong hospital medical staff committee review functions in order to ensure high-quality medical care at the lowest possible cost; and

WHEREAS, less than half of the hospitals are accredited by the Joint Commission on Accreditation of Hospitals; and

WHEREAS, the public and the Legislature continue to evidence strong support for the profession to assume its rightful responsibility to take those measures necessary to assure high-quality care; and

WHEREAS, the Assembly Committee on Public Health has commended an amendment of the *Guiding Principles for Physician-Hospital Relationships* which states that hospital medical staff bylaws should provide a hearing procedure which a member or applicant may use when he considers that his appointment was denied or his membership terminated without sufficient cause, in an arbitrary, discriminatory, capricious or unreasonable manner; and

WHEREAS, the California Medical Association Medical Staff Survey Committee has been invited to survey, and has surveyed, the medical staff activities of 166 general hospitals in nineteen (19) coun-

ties and thereby exerted positive efforts to stimulate and improve staff self-government and responsibility as well as professional education; now, therefore, be it

Resolved: That those medical staffs which have not done so be again urged to adopt the *Guiding Principles for Physician-Hospital Relationships* and request the California Medical Association committee to survey their medical staff activities; and be it further

Resolved: That the California Medical Association express appreciation for the cooperation shown by the Assembly Committee on Public Health; and be it further

Resolved: That the House of Delegates express special commendation to the physicians on the Medical Staff Survey Committee as well as the local physicians who have taken part in these surveys by contributing approximately 600 man-days of their time and talents conducting on-the-spot surveys.

ACTION: Resolution adopted by House, together with Reference Committee additions which called for italicizing the language in the first "Resolved" and adding a fourth "Resolved" calling for a special commendation to Doctor James C. MacLaggan "for his untiring efforts in developing and implementing this program and for his forbearance during the time necessary to achieve a proper understanding and acceptance of this concept."

CPS BYLAW AMENDMENT

Resolution No. 43-65 Committee CPS
Introduced by: Council

WHEREAS, a continuity of experience is essential for the proper discharge of the duties and responsibilities of the Board of Trustees of California Physicians' Service; and

WHEREAS, such continuity of experience is interrupted when a Chairman of the CPS Board of Trustees ceases to be a Trustee by reason of the "two-term" rule, and the obvious benefits of his experience and detailed knowledge of CPS affairs are thus abruptly lost to the Board and its incoming Chairman; now, therefore, be it

Resolved: That Section 5 of Chapter III of the by-laws of California Physicians' Service is hereby amended by adding thereto the following:

"The Chairman of the Board of Trustees, upon ceasing to be a member of the Board due to ineligibility for re-election under the two-term rule, shall become an ex officio member of the Board, with right to vote, for a period of one year immediately following the expiration of his term of office as an elected Trustee; and, whenever there is an ex of-

ficio member of the Board serving under this section, the aggregate authorized number of Trustees is automatically increased by one."

ACTION: Adopted by House.

COUNCIL SIZE AND FORMAT

Resolution No. 44-65 Committee 4
Introduced by: Council

ACTION: In lieu of action on the language of the resolution, the committee recommended the following procedure, which was adopted by the House:

"This committee recommends the appointment of an ad hoc committee to study the matter of Councilor districts, the size of the Council and the number of members a Councilor should represent; also, to study the matter of representation in this House and report its conclusions and recommendations at least sixty (60) days prior to the 1966 Annual Meeting."

COMMUNICATIONS

Resolution No. 45-65 Committee 3
Introduced by: San Diego Delegation

WHEREAS, the best method of communication is personal presentation; and

WHEREAS, hospital staff meetings and similar type meetings offer an ideal avenue for improved communications; and

WHEREAS, the members of this House of Delegates are not being used to the fullest potential as a part of the communications structure; now, therefore, be it

Resolved: That the members of this House of Delegates serve as a part of the CMA communications armamentarium; and be it further

Resolved: That efforts be made to base CMA communications to its members on the grass roots level using members of the House as one of several techniques; and be it further

Resolved: That the Bureau on Communications be requested to fully develop this concept.

ACTION: Adopted by House, amended as above.

COMMUNITY HEALTH COUNCIL

Resolution No. 46-65 Committee 3
Introduced by: Warren L. Bostick, M.D.

WHEREAS, a basic interest of all citizens of this State is to live in a community in which the manageable or avoidable hazards of life and health are minimized; and

WHEREAS, the California Medical Association and its component societies have frequently acknowledged the medical profession's direct and proper concern with community health hazards; and

WHEREAS, the solution to these community health problems requires cooperative efforts of many medical groups, voluntary health agencies and citizen organizations; and

WHEREAS, it is desirable to establish a mechanism for the public to be aware of our concern; and

WHEREAS, it is the responsibility of the medical profession to assume a role of aggressive leadership in solving these community health problems, if the public is to continue to recognize the profession's dedication to health; now, therefore, be it

Resolved: That the California Medical Association take the initiative in establishing a state-wide Community Health Council in cooperation with other organizations and agencies interested in selected aspects of community health; and be it further

Resolved: That the Council of the California Medical Association be requested to establish broad guidelines to assist in the formation of such a Community Health Council including criteria for membership, scope of problem areas, organizational structure, staffing and financing; and be it further

Resolved: That the Council be urged to make the implementation of this state-wide Community Health Council an item of top priority.

ACTION: Adopted by House.

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CPS DOCTORS' EMPLOYEES INSURANCE

Resolution No. 47-65

Committee CPS

Introduced by: San Francisco Medical Society

WHEREAS, the "Special CPS Program for Doctors, Their Families and Office Employees" has been discontinued because of substantial losses in 1964; and

WHEREAS, the doctors' office employees are now being offered the CPS individual family plan with coverage considerably inferior at a similar premium; and

WHEREAS, doctors' office employees have definite influence on the public image of both CPS and the CMA; and

WHEREAS, industry is increasingly covering its employees' health needs through fringe benefits; now, therefore, be it

Resolved: That CPS be instructed to develop immediately a new hospital and medical program for doctors' office employees with adequate coverage.

ACTION: Adopted by House.

WATER POLLUTION

Resolution No. 48-65

Committee 3B

Introduced by: San Francisco Medical Society

WHEREAS, pollution in Northern California rivers, streams, lakes and the San Francisco Bay has reached alarming proportions; and

WHEREAS, continuance of parts of the California Water Plan will multiply pollution and water deficiency problems to the detriment of health, agriculture, fish and wildlife, commerce and industry; now, therefore, be it

Resolved: That the California State Water Pollution Control Board and its regional boards and the State Department of Public Health be asked to recommend suspension of further operations on the various projects of the present California Water Plan until the elements deleterious to health are investigated and eliminated.

ACTION: Referred to Commission on Public Agencies for further study and recommendation to Council.

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HEMODIALYSIS CENTERS

Resolution No. 49-65

Committee 3B

Introduced by: San Francisco Medical Society

WHEREAS, repeated hemodialysis has proved to be feasible therapy for chronic uremia and capable of maintaining the lives of many uremic patients; and

WHEREAS, there are an estimated 300 new uremic patients each year in California where death could be prevented and useful lives prolonged; and

WHEREAS, the cost of repeated hemodialysis is beyond the means of most patients; now, therefore, be it

Resolved: That the California Medical Association study the establishment of hemodialysis centers for patients with chronic renal disease requiring repeated dialysis.

ACTION: Adopted by House and referred to Council for implementation.

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MEDICAL EDUCATION

Resolution No. 50-65

Committee 3A

Introduced by: Eugene S. Hopp

Representing: San Francisco

WHEREAS, the primary purpose of a medical school is to provide the best possible education needed to insure the development of the ablest practitioners of medicine, and

WHEREAS, research and the production of teachers in medicine are also essential supportive elements in achieving the foregoing objective, and

WHEREAS, the greater availability of research funds from Federal sources usually emphasizes medical research at the expense of the essential needs for teaching practitioners of medicine, now, therefore, be it

Resolved: That the California Medical Association adopt as its policy the concept that the primary purpose of medical school education is that of production of practitioners of medicine, and be it further

Resolved: That strenuous efforts be made to correct this imbalance of appropriations in order to increase the flow of funds for teaching purposes, and be it further

Resolved: That the Bureau of Research and Planning and the Committee to Study the Role of Medicine in Society jointly undertake a study of this problem in order to assist in the formulation of a rational approach to its resolution.

ACTION: *Substitute resolution as above adopted by House and referred to Bureau of Research and Planning and Committee to Study the Role of Medicine in Society for further joint study.*

EXFOLIATIVE CYTOLOGY

Resolution No. 51-65 Committee 3B

Introduced by: Leon P. Fox
Representing: Santa Clara County

WHEREAS, exfoliative cytology has been developed to the point that it is now generally accepted as a valuable diagnostic procedure; and

WHEREAS, exfoliative cytology appears relatively simple of performance technically; and should not be done by those who are unqualified by training and experience to interpret the findings; now, therefore, be it

Resolved: That this House of Delegates go on record, declaring that in its opinion, exfoliative cytology be done only under the direct and immediate supervision of a doctor of medicine.

ACTION: *Substitute resolution, amended as above, adopted by House.*

UNETHICAL LABORATORY PRACTICES

Resolution No. 52-65 Committee 3B

Introduced by: Leon P. Fox
Representing: Santa Clara County

Resolved: That it is incumbent upon physicians to secure for their patients laboratory work of high quality and reliability; and be it further

Resolved: That it is unethical for a physician to derive income from service not actually per-

formed or supervised by him in connection with laboratory work as it is in all other aspects of medical practice; and be it further

Resolved: That this resolution be referred to the Council for distribution to component societies, which have primary responsibilities in these matters.

ACTION: *Substitute resolution as above adopted by House and referred to Council for implementation.*

MEDICAL SCHOOL CURRICULUM ADDITIONS

Resolution No. 53-65 Committee 3A

Introduced by: Malcolm C. Todd
Representing: Councilor

Resolved: That the California Medical Association work in liaison with the representatives of our medical schools to secure the introduction into the curriculum of courses in medical ethics and in the socio-economics of medical care, and be it further

Resolved: That the medical school faculties be encouraged to consult with the local medical society on the development and presentation of these courses.

ACTION: *Substitute resolution as above adopted by House and referred to Council for implementation.*

KERR-MILLS IMPLEMENTATION

Resolution No. 54-65 Committee 3A

Introduced by: Herbert L. Burrows
Representing: Los Angeles County

WHEREAS, the California Medical Association has taken the lead in efforts to gain effective implementation on the Kerr-Mills law for the benefit of the elderly; and

WHEREAS, the California Medical Association pointed out that many administrators were committed to the Social Security approach for financing; and

WHEREAS, the California Medical Association indicated that this bias led to implementation of the Federal statute in a manner that was inconsistent with the intent of the law; and

WHEREAS, the Kerr-Mills law is a Federal law and it is the responsibility of our representatives in Washington to take vigorous action to rectify deficiencies and evasions in the administration of Federal statutes and assist in gaining implementation according to the intent of Congress; now, therefore, be it

Resolved: That (1) the CMA request the support of Senator Thomas Kuchel as the Senior California legislator to support our efforts to gain implementation of the Kerr-Mills law according to the

intent of Congress, and (2) that CMA requests Thomas Kuchel to actively and vigorously oppose and organize opposition to Medicare until California honestly implements Kerr-Mills and has given Kerr-Mills an honest and fair trial, and (3) the CMA request the support of all state and county leaders of both parties in recognition of the true merits of this request, and (4) the CMA inform the AMA and all state medical societies of our action and request their support in this matter.

ACTION: *Referred to Council and its special ad hoc committee for use at its discretion.*

FEE SCHEDULES

Resolution No. 55-65

Committee 3A

Introduced by: Humboldt-Del Norte Counties

WHEREAS, past experience has shown that governmental and quasi-governmental agencies tend to establish payment arrangements based on fee schedules paying less than the usual fees of the physicians involved; and

WHEREAS, revision of established payment arrangements is either denied or lags far behind in any adjustments required to meet changes in the value of the dollar and/or the value of the service rendered; and

WHEREAS, the Relative Value Studies have become a stable, well-maintained, integral part of payment arrangements for many physician fees; now, therefore, be it

Resolved: That any committee or officer of the California Medical Association which discusses payment arrangements for physicians with any organization, governmental or otherwise, is directed hereby to accept no payment arrangement other than a fee for service arrangement based on the then current Relative Value Studies of the California Medical Association with conversion factors which are no less than the usual conversion factors used at that time by the physicians involved; and be it further

Resolved: That any understandings as to payment arrangements will be reviewed at least annually and that corrections will be made in the conversion factors which are proportional to any changes in the Consumer's Price Index of the United States Bureau of Labor Statistics after the Index has been amplified by a tax factor based on the then current Federal and State Income Taxes; and lastly be it

Resolved: That any payment arrangements now in effect be revised to conform to this entire resolution within the next year.

ACTION: *Referred to ad hoc Committee on State Fee Schedules.*

COMMENDATION

Resolution No. 56-65

Committee 3B

Introduced by: Monterey County

WHEREAS, meningococcus meningitis has been a disease of considerable public as well as medical interest and concern in California during the past year; and

WHEREAS, the relatively high incidence of this disease among military personnel at Ford Ord, California, has been the topic of general public discussion during the past year; and

WHEREAS, it has been determined through extensive investigation by local and state medical public health as well as responsible military medical officials that the very best of medical and public health practices have been used in caring for the health of the military personnel at Fort Ord; and

WHEREAS, plans for future prevention, control and care of meningitis cases at Fort Ord represent the application of the very best in public health and medical knowledge; now, therefore, be it

Resolved: That the California Medical Association commend the military, medical and command personnel responsible for medical care for their high degree of medical skill and concern for public welfare in treating the meningitis cases at Fort Ord; and be it further

Resolved: That the CMA commend the state and local health departments for their cooperation and diligence in helping to control this disease and protect the public.

ACTION: *Adopted by House.*

REHABILITATION STANDARDS

Resolution No. 57-65

Committee 3B

Introduced by: Alameda-Contra Costa

Resolved: That this House urge the California Commission for Accreditation of Nursing Homes and Related Facilities to develop and define a set of minimum standards which nursing homes and related facilities must meet before these institutions may claim to provide rehabilitation services.

ACTION: *Adopted by House and referred to Council for implementation.*

BLOOD ALCOHOL PRESUMPTIVE LIMITS

Resolution No. 58-65

Committee 3B

Introduced by: Ralph King

Representing: San Diego

WHEREAS, for several years legislation has been introduced in the California Legislature which would establish a standard of measurement of al-

cohol in the blood or other body fluid of a driver of a motor vehicle as being presumptive evidence of that driver's impaired ability to drive, and said legislation has failed to be enacted into law; and

WHEREAS, said standard has been proposed at .10 per cent of alcohol by weight, which standard has been accepted as a fair and accurate test by recognized medical and research authorities the world over; and

WHEREAS, the legislative recognition of said standard for use in the courts of this State would greatly assist in the successful prosecution of drunk driving cases; and

WHEREAS, legislation has been proposed to enact such a "presumptive limits law"; now, therefore, be it

Resolved: That this House of Delegates urge the passage of such legislation in the 1965 session of the California State Legislature and pledges its support for the enactment thereof.

ACTION: Adopted by House.

DRUNK DRIVING INVESTIGATION

Resolution No. 59-65

Committee 3B

Introduced by: Ralph King

Representing: San Diego

WHEREAS, the most fair and accurate method of determining whether a suspected drunk driver has his ability to drive impaired is by measuring the concentration of alcohol in his body fluids; and

WHEREAS, medical authorities and research organizations throughout the world have agreed on this principle; and

WHEREAS, when a driver of a motor vehicle has been arrested for drunk driving, and a doctor or specially trained technician is available to obtain a sample of blood or other body fluid, that such practice should be standard procedure in the attempt to ascertain the concentration of alcohol in the person's system; and

WHEREAS, many persons arrested for drunk driving refuse to submit to such an examination, thus thwarting efforts to obtain such evidence of their physical condition; and

WHEREAS, a number of states in the United States, by legislation have provided as a condition of exercising the driving privilege that persons considered on reasonable and probable grounds to have been driving under the influence of intoxicating liquor, or the combined influence of intoxicating liquor and any drug, impliedly consent to sub-

mit to such an examination, or upon exercising their right to refuse such examination, suffer the possibility of loss of license unless lawful reasons for such refusal prevail; and

WHEREAS, legislation has been proposed in the 1965 California State Legislature to enact such an "implied consent law"; now, therefore, be it

Resolved: That this House of Delegates support such proposed legislation and urges its passage in the interest of fair, accurate and impartial administration of justice on the basis of the best possible scientific evidence, and in the interest of curtailing, by providing an accurate test, the carnage on the highways of California resulting from motor vehicle accidents caused by drivers under the influence of alcohol.

ACTION: Adopted by House.

COMMENDATION

Resolution No. 60-65

Committee 3B

Introduced by: Council

WHEREAS, during the week before Christmas 1964, northern California had the worst storm in its history; and

WHEREAS, there was an immediate response by the members of the medical and nursing professions in the Humboldt-Del Norte county areas; and

WHEREAS, the medical and health personnel in the area, as well as those who entered the area after it had been declared a disaster, contributed significantly to the maintenance of health of the victims of the disaster; now, therefore, be it

Resolved: That the House of Delegates of the California Medical Association does hereby commend: The Humboldt-Del Norte Medical Society; the Nurses of the Humboldt-Del Norte Area; the California Nurses' Association, and the Department of Public Health; and be it further

Resolved: That the House of Delegates further commends the members of the Committee on Disaster Medical Care of the Humboldt-Del Norte County Medical Society for their quick response to the emergency situation with a plan of preparedness. The names of many laymen, nurses, as well as physicians, have been suggested for special commendation to the California Medical Association, but for fear of omitting some person who has done an outstanding job, specific names of individuals who performed above and beyond the call of duty will not be mentioned.

ACTION: Adopted by House.

CALIFORNIA MEDICINE

Resolution No. 61-65

Committee 3B

Introduced by: Carl E. Anderson
Representing: Councilor

WHEREAS, CALIFORNIA MEDICINE, the official journal of the California Medical Association, has evidenced a marked improvement in content, format and typography in the past two years; and

WHEREAS, the journal has drawn national as well as local acclaim by being selected as the outstanding state medical journal by the American Medical Writers Association; and

WHEREAS, the assistant to Editor Dwight L. Wilbur, Mr. Robert F. Edwards, has been honored by election to the presidency of the Northern California Division of the American Medical Writers Association; and

WHEREAS, additional improvements have been planned and approved, which will make the journal even more outstanding and of still greater service to the members of the California Medical Association; now, therefore, be it

Resolved: That this House of Delegates vote its warm commendation to the Committee on CALIFORNIA MEDICINE of the Scientific Board, to the editor and his staff assistants for the performance of a most meritorious task in elevating our journal to its present high position and their continuing efforts to improve still further the value of CALIFORNIA MEDICINE to its readers in California and throughout the nation.

ACTION: Resolution amended as above adopted by House.

MEDICAL DISCIPLINE

Resolution No. 62-65

Committee 3

Introduced by: Helen Weyrauch
Representing: San Francisco

ACTION: Not adopted by House.

SENATE BILL 114

Resolution No. 63-65

Committee 3A

Introduced by: Bruce McDowell
Representing: Merced County

ACTION: Not adopted by House.

CORPORATE PRACTICE OF MEDICINE

Resolution No. 64-65

Committee 3B

Introduced by: Los Angeles Delegation

WHEREAS, the State laws of California disallow any corporate body and/or corporation to engage in the practice of medicine; and

WHEREAS, Radiologists, Radio therapists, Anesthesiologists, Physiatriests and Pathologists are recognized as true practitioners of medicine; and

WHEREAS, it is recognized that these specialists offer a true medical service of patient care rather than a hospital service; and

WHEREAS, the AMA has over a period of years, voiced its disapproval of hospitals being engaged in any way in the practice of medicine; now, therefore, be it

Resolved: That this House of Delegates reaffirm the position that hospitals or other similar institutions who are conjoined in the cooperative care of the sick, shall not engage, either directly or indirectly, in the practice of medicine, either through contractual agreement or salary; and be it further

Resolved: That medical organizations at local levels be made aware of their responsibilities for dealing with violation of the principles stated in this resolution and that the individual physician be made aware of the possible violations of the Business and Professions Code and possible action by the Board of Medical Examiners; and be it further

Resolved: That the AMA be notified of the CMA's position in this matter, so as to conjoin in affirmation of such policy as it sees fit.

ACTION: Amended resolution as above adopted by House.

CPS PAYMENTS TO RADIOLOGISTS

Resolution No. 65-65

Committee CPS

Introduced by: Alameda-Contra Costa

Resolved: That the California Medical Association endorse the principle of identical CPS payments to all physicians in or out of the hospital for identical services and that CPS promulgate and expedite this principle; and be it further

Resolved: That the CMA-CHA Liaison Committee be instructed to persuade the CHA to cooperate in establishing acceptance of this principle in practice of all California hospitals.

ACTION: Substitute resolution as above adopted by House.

CALIFORNIA PLAN OF MEDICAL ASSISTANCE FOR THE AGED

Resolution No. 66-65

Committee 3B

Introduced by: Council

Resolved: That the California Medical Association reaffirm its position of support for the California Plan of Medical Assistance for the Aged, which was the basis of A.B. 760, introduced into the California assembly by Assemblyman Jack T. Casey on February 2, 1965; and be it further

Resolved: That the California Medical Association continue to extend its support to this legislation and to encourage its component societies to inform the public of this proposed plan.

ACTION: Adopted by House.

FEDERAL LEGISLATION

Resolution No. 67-65

Committee 3B

Introduced by: Malcolm C. Todd

Representing: Councilor

ACTION: Resolutions No. 67-65 and No. 70-65 were considered together and in lieu of the language of the resolutions the statement below was adopted by the House:

The California Medical Association recognizes and affirms the desirability and necessity for medical care for the needy aged, and believes that it should have the attributes of excellent quality, free choice of physician, and dignity for the patient.

The California Medical Association strongly urges full and open hearings upon all legislation proposed to effect these objectives in order that they might be accomplished with the greatest dispatch and in order that they might be accomplished by a program which gives due consideration for the national economy.

The California Medical Association recognizes that in order to accomplish these aims, financial assistance must be provided for hospital and medical care for this group and reaffirms its belief that voluntary health insurance arrangements constitute the most satisfactory mechanism by which the provision of such services can be financed, as exemplified in the California Plan of Medical Assistance for the Aged.

In implementing this, the California Medical Association suggests that a mechanism analogous to that employed in prepaying the costs of health care for persons under the proved and successful Federal Employees Health Benefits Program be offered as a possible method for covering the medically needy population 65 and over under voluntary health insurance programs, and also be made available on a voluntary basis to all persons of this age group.

The CMA also reaffirms its support of the AMA task force in its efforts to analyze and evaluate individual points within proposed legislation.

In addition to the above statement, the House adopted a recommendation reading:

The CMA House of Delegates requests the Council to consider a petition to the AMA to immediately call an emergency meeting of the AMA House of Delegates and as many as possible interested physicians in Washington, D.C., to bring strongly to the attention of the members of Congress and the President of the United States that they have in their hands the potential for changing some medical practices in this country for the better; that the currently pending legislation does not fulfill the principles outlined in the body of the report; that the future of the quality of medical care in the United States depends upon their actions. Failure to meet this challenge will prevent the physicians of this country from providing the highest quality of medical care for all people.

The CMA shall inform each state and territorial medical society of this action.

DISASTER PREPAREDNESS IN CALIFORNIA

Resolution No. 68-65

Committee 3B

Introduced by: Harold Kay

Representing: Councilor

WHEREAS, the people of the State of California have looked to and received expert medical and health care from the medical, nursing and allied professions; and

WHEREAS, it is only proper that this relationship exist; and

WHEREAS, the medical, nursing and allied health professions feel a responsibility to the citizens of California in attending to their ills, both mental and physical; and

WHEREAS, it is the intention of the allied health professions to continue to provide counsel and treatment to the best of their ability in any circumstance that presents itself; and

WHEREAS, the circumstances include not only any time of day or night under any weather conditions, but may also include such conditions as earthquake, fire, flood, or other natural disaster, or manmade disaster; and

WHEREAS, in certain instances, the State of California has recognized its obligations to plan for disaster situations by establishing the California Disaster Office; and

WHEREAS, the responsibility of the California Disaster Office is for the preparation for disaster situations in the State of California; now, therefore, be it

Resolved: That the California Medical Association recommend that the recently revised edition of the *California State Civil Defense and Disaster Plan*, more commonly referred to as the "gold book" be given the widest possible dissemination, and the California Disaster Office make efforts to acquaint the general public with the contents of this plan; and be it further

Resolved: That the health professions expected to render assistance under this plan be kept informed of the locations of supply centers and of modifications and interpretations of preparation plans; and be it further

Resolved: That the Governor of the State of California and the California Disaster Office promote further liaison with neighboring states for the purpose of unifying plans, terms, legislation, packaging, and communications systems, so that in the event of a medical team or medical facilities and supplies being needed in California from another state, or by a neighboring state of California, no undue time is lost by first interpreting state laws, rules and regulations, and/or negotiations.

ACTION: Adopted by House.

REDEFINITION OF CIVIL DEFENSE

Resolution No. 69-65

Committee 3B

Introduced by: Harold Kay

Representing: Councilor

WHEREAS, the California Medical Association recognizes the need for adequate preparation for natural disaster; and

WHEREAS, medical and other civil defense supplies which are financed wholly or in part by federal funds could be used to save human lives and mitigate human suffering in many natural disasters; and

WHEREAS, the Federal Civil Defense Act of 1950, as presently worded, is entirely attack oriented; now, therefore, be it

Resolved: That the California Medical Association strongly urge the passage of federal legisla-

tion which provides a new definition of civil defense to include peacetime catastrophe as well as attack; and be it further

Resolved: That copies of this resolution be sent to the President of the United States, Senators and Congressmen of the State of California, to the Director of the California Disaster Office, and to the President of the American Medical Association.

ACTION: *Adopted by House.*

FEDERAL LEGISLATION

Resolution No. 70-65

Committee 3B

Introduced by: John F. Murray

Representing: Councilor

ACTION: *See report on Resolution No. 67-65, with which Resolution No. 70-65 was combined.*

AMENDMENTS TO CONSTITUTION AND BYLAWS

Amendments to the Constitution and Bylaws may be introduced at any session of the House of Delegates. Amendments to the Bylaws may be acted upon 24 hours after introduction, while amendments to the Constitution must lie on the table until the next regular meeting of the House of Delegates.

Reference Committee No. 4 considers all proposed amendments to both the Constitution and the Bylaws. Under the required waiting periods, all Constitutional amendments introduced in 1964 were brought before the House of Delegates for action in 1965. In some instances, proposed amend-

ments to the Bylaws are also held over for one year, where they are entered as companions to proposed amendments to the Constitution.

ACTIONS

Listed below are actions taken by the House of Delegates on all proposed amendments to the Constitution and Bylaws presented for action this year. A two-thirds affirmative vote is required for passage of all amendments. New language approved is shown in italics.

CONSTITUTIONAL AMENDMENTS

CONSTITUTIONAL AMENDMENT 1-64

Subject: Composition of Council—Article III,
Part B, Section 9(b)

Introduced by: Carl E. Anderson

Representing: The Council

Resolved: That Article III, Part B, Section 9, paragraph (b) be amended by adding the words shown in italics so that the paragraph shall read as follows:

(b) The president, president-elect, *immediate past president*, speaker and vice-speaker.

ACTION: *Adopted by House.*

CONSTITUTIONAL AMENDMENT 2-64

Subject: Composition of Council—Article III,
Part B, Section 9(a)

Introduced by: Chester Herrod, M.D.

Representing: San Francisco

— and —

CONSTITUTIONAL AMENDMENT 3-64

Subject: Councilor Districts—Article III,
Part B, Section 10

Introduced by: Chester Herrod, M.D.

Representing: San Francisco

ACTION: *Not adopted by House; referred to ad hoc committee of Delegates for study, together with Bylaw Amendments 14-65 and 18-65.*

BYLAW AMENDMENTS

BYLAW AMENDMENT 1-65

Resolved: That Chapter V, Section 6 of the Bylaws of the California Medical Association be amended by deleting the language set forth below in parentheses and by inserting in lieu thereof the language shown in italics below, so that the section shall read:

SECTION 6—Qualifications of Delegates and Alternates

At least three (3) years' active membership in good standing in the (component society) *California Medical Association* immediately preceding election shall be required for election as delegate or alternate.

ACTION: *Adopted by House.*

‘ ‘ ‘

BYLAW AMENDMENT 2-65

Resolved: That Chapter 4, Section 1, Sub-section (b) of the Bylaws of the California Medical Association be amended by deleting the language shown in parentheses:

(b) Term of Office. The term of office for the members of the Scientific Board shall be three (3) years with eligibility for re-election. (except that the initial terms of office, when the Board is created, shall be for lesser terms to establish the rotation of one-third (1/3) of the Board's membership each year.

The initial Board shall be selected from the nominations made by the eighteen (18) scientific sections and the categories and groups named as members-at-large by a special committee of the California Medical Association appointed for this purpose by the chairman of the Council. One-third (1/3) of the initial terms of office shall be for one (1) year; another one-third (1/3) for two (2) years; and a final one-third (1/3) for three (3) years. The length of term of each of the initial appointees shall be determined by lot.)

ACTION: *Adopted by House.*

‘ ‘ ‘

BYLAW AMENDMENT 3-65

Resolved: That Chapter 4, Section 2, Sub-section (b) of the Bylaws of the California Medical Association be amended by deleting the language in parentheses and adding the language in italics.

(b) The Committee on Continuing Medical Education. The Committee on Continuing Medical Education shall consist of (five (5)) *seven (7)* members from the Scientific Board including the

chairman of the Committee on Scientific Assemblies. No more than one (1) member from any discipline shall be appointed. The directors of Continuing Medical Education of the Medical Schools in California shall be invited to sit as consulting members, non-voting, of this Committee.

The remainder of the section remains unchanged.

ACTION: *Adopted by House.*

‘ ‘ ‘

BYLAW AMENDMENT 4-65

Resolved: That Chapter IV, Section 2, Sub-section (f) of the Bylaws of the California Medical Association be amended by deleting the language shown in parentheses:

(f) Committee on Cancer. The Committee on Cancer shall consist of seven (7) members; at least three (3) of whom shall be members of the Scientific Board and the remainder of whom shall be selected from the membership-at-large of the association. The Committee on Cancer shall be responsible for the activities of this association in the field of cancer research, prevention, education and control, through which the following standing subcommittees shall report:

- (1) Committee on Cancer Education.
- (2) Committee on Tumor Tissue Registry.
- (3) Committee on Consultative Tumor Boards.
- ((4) Committee on New and Unproved Methods of Cancer Treatment.)

Each of these subcommittees shall be composed of five (5) members. The chairman shall be selected from the Committee on Cancer and four (4) additional members shall be selected from the membership-at-large of the association.

ACTION: *Adopted by House.*

‘ ‘ ‘

BYLAW AMENDMENT 5-65

Resolved: That the present Chapter IV, Section 2, paragraph (h) of the Bylaws of the California Medical Association be amended by deleting the language shown in parentheses and substituting the language in italics.

(h) Committee on Nominations. The Committee on Nominations shall consist of three (3) members elected by the Scientific Board. (at the annual meeting of the Board. (to serve for one (1) year, eligible for reelection but once, and thereafter only after a one (1) year interval. The Chairman of the Scientific Board shall nominate three (3) members and the Board-at-large shall nominate three (3) members for election to this committee.) *Terms of*

office shall be for three (3) years, except for terms of office beginning in 1965, when lesser terms will be established to permit rotation and continuity on the Committee. The terms of office beginning in 1965 will be one (1) member for one (1) year, one (1) member for two (2) years, and one (1) member for three (3) years. A member of this committee is eligible for reelection only after a one (1) year interval. The chairman of the Scientific Board shall nominate one (1) member and the Board-at-large shall nominate one (1) member annually for election to this committee.

The balance of the section remains unchanged.

ACTION: *Adopted by House.*

‘ ‘ ‘

BYLAW AMENDMENT 6-65

Resolved: That Chapter IV, Section 4, paragraph (a) of the Bylaws of the California Medical Association be amended by deleting the word "Eye" and substituting the word "Ophthalmology" and to read as follows:

(a) Scientific Sections. The Association shall be divided into eighteen (18) scientific sections as follows: Internal Medicine; General Surgery; Pediatrics; (Ear, Nose and Throat) *Otolaryngology*; Urology; Anesthesiology; Obstetrics and Gynecology; Radiology; Industrial Medicine and Surgery; Pathology and Bacteriology; Dermatology and Syphilology; Psychiatry and Neurology; General Practice; Preventive Medicine and Public Health; Allergy; (Eye) *Ophthalmology*; Orthopedics; and Physical Medicine.

ACTION: *Adopted by House in amended form, as above.*

‘ ‘ ‘

BYLAW AMENDMENT 7-65

Resolved: That Chapter IV, Section 4, paragraphs (c) and (d) of the CMA Bylaws be amended by deleting the language shown here in parentheses and substituting the language in italics.

(c) Election of Section Officers. The members of each section shall, at the regular Annual Session of the Association, elect a chairman (and a vice-chairman), *a secretary and an assistant secretary, to serve for the term of one year.* (and a secretary to serve a term of three years. In addition, the members of each section shall also select three nominees for the Scientific Board, one of whom, when elected by the Council, shall serve for a term of three years. The secretary may serve a second full three year term.) Officers are not eligible for reelection to the same office, but may be elected to another office in the section. Each section shall have an executive committee which shall consist of the chairman, (the vice-chairman) *the secretary, and*

an assistant secretary. If a vacancy occurs in any office, the executive committee of the section shall appoint an eligible member to fill the vacancy until the next annual meeting. Prior to the annual meeting the chairman of each section shall appoint a nominating committee composed of three members who shall nominate one or more members for all elective offices of the section and nominate three or more members for the Scientific Board.

(d) Nominations to the Scientific Board. (Each scientific section shall be represented on the Scientific Board by one (1) member who shall serve for a three (3) year term. Three (3) nominations shall be made for this appointment to the Nominating Committee of the Scientific Board.) *The members of each section shall select three (3) nominees for the Scientific Board, one (1) of whom when elected by the Council, shall serve for a term of three (3) years. The three (3) nominations shall be made for this appointment to the Nominating Committee of the Scientific Board.* These nominations shall be made at the time of the Annual Session of the Association.

ACTION: *Adopted by House.*

‘ ‘ ‘

BYLAW AMENDMENT 8-65

ACTION: *Withdrawn by author.*

‘ ‘ ‘

BYLAW AMENDMENT 9-65

Resolved: That Chapter VII, Section 9, paragraph (d) of the CMA Bylaws be amended by deleting the language shown in parentheses and substituting the language in italics.

(d) (The Bureau of Communications) *The Commission on Communications* shall study, investigate, and conduct approved Association activities concerning communications and relations between the public and the medical profession and within the profession itself.

The remainder of the paragraph shall remain unchanged.

ACTION: *Adopted by House.*

‘ ‘ ‘

BYLAW AMENDMENT 10-65

Resolved: That Chapter IV, Section 2, of the CMA Bylaws be amended by adding Section (i), to read as follows:

(i) *Committee on Dangerous Drugs and Adverse Drug Reactions. The Committee on Dangerous Drugs and Adverse Drug Reactions shall study the medical problems relating to narcotics and dangerous and hypnotic drugs and the adverse reactions from drugs.*

ACTION: *Adopted by House.*

BYLAW AMENDMENT 11-65

ACTION: *Not adopted by House.*

BYLAW AMENDMENT 12-65

Resolved: That Chapter VII, Section 9, Paragraph (a) of the CMA Bylaws be amended by deleting the language shown in parentheses, as follows:

(a) The Commission on Medical Services shall study, investigate and from time to time submit recommendations concerning the methods under which medical services are furnished or organized and concerning all phases of medical economics. It shall allocate to the various standing committees for which it is responsible particular projects within their respective fields.

It shall refer for investigation and review to the Committee on Mediation (and Medical Care Insurance) all complaints received from medical societies in which the component society requests a review by the committee or any case where the component society finds it is unable or unwise for its Mediation Committee to review the case. Orderly procedures to carry out this function shall be established. The findings and recommendations of the committee concerning each case reviewed shall be reported to the component medical society, the parties to the dispute, this commission and the Council.

ACTION: *Adopted by House.*

BYLAW AMENDMENT 13-65

Resolved: That the present Chapter VII, Section 1(a) through 1(e) be deleted, and the following Section 1 be substituted therefor.

SECTION 1—Commissions and Standing Committees

This Association has the following commissions and standing committees that are subordinate to the respective commissions as follows:

(a) Commission on Medical Services, responsible for the activities of and through which the following standing committees shall report:

1. Committee on Fees,
2. Committee on Federal Medical Care Programs,
3. Committee on Mediation,
4. Committee on Insurance and Prepayment.

(b) Commission on Public Agencies, responsible for the activities of and through which the following standing committees shall report:

1. Committee on Public Health,
2. Committee on Mental Health,
3. Committee on Welfare Medical Care Programs,

4. Committee on Occupational Health and Rehabilitation.

(c) Commission on Community Health Services, responsible for the activities of and through which the following standing committees shall report:

1. Committee on Rural Health,
2. Committee on School Health,
3. Committee on Health Care for the Aging,
4. Committee on Disaster Medical Care,
5. Committee on Automotive and Traffic Safety,
6. Committee on Medical Aspects of Sports,
7. Committee on Environmental Health,
8. Committee on Blood Banking.

(d) Commission on Communications, responsible for the activities of and through which shall report such committees as may be named by the Council to function in activities bearing on the relations of the Association with its own members and with other individuals or organizations.

(e) Commission on Professional Welfare, responsible for the activities of and through which the following standing committees shall report:

1. Committee on Physicians Group Insurance,
2. Liaison Committee to Medical Schools,
3. Medical Review and Advisory Committee,
4. Liaison Committee to the State Bar of California.

(Ed. note—Section 1 (f) of existing Bylaws remains unchanged.)

(g) Commission on Allied Health Professions and Services, responsible for the activities of and through which the following standing committees shall report:

1. Committee on Paramedical Personnel,
2. Committee on Other Professions,
3. Liaison Committee to the California Medical Assistants Association,
4. Committee on Medicine and Religion,
5. Committee on Voluntary Health Agencies.

(h) Commission on Hospital Affairs, responsible for the activities of and through which the following standing committees shall report:

1. Medical Staff Survey Committee,
2. Committee on Health Facilities Planning,

ACTION: *Adopted by House as amended, above.*

BYLAW AMENDMENT 14-65

Resolved: That Chapter V, Section 2 of the Bylaws of the CMA shall be amended to read as follows:

Commencing with the 1966 regular session of the House of Delegates, each component society shall be entitled to one Delegate for each 100 active members or major fraction thereof, according to its membership as of the first day of September of

the preceding year; provided, however, that each component society shall be entitled to a minimum of two delegates; and that every six years subsequent to 1966, the Council of the California Medical Association shall automatically review the size of the House of Delegates and make appropriate recommendations.

ACTION: *Referred to ad hoc committee of House of Delegates. (See Constitutional Amendments 2-64 and 3-64.)*

BYLAW AMENDMENT 15-65

WHEREAS, in the past Associate Membership with reduced dues was established as an economic measure for low salaried teachers and government agency employees; and

WHEREAS, these conditions no longer exist to any great extent since many such practitioners with pension plans, fringe benefits and greatly increased salaries are actually doing much better than many doctors in private practice; and

WHEREAS, the local medical society board of directors should have the prerogative of making the decision on the Associate Memberships; now, therefore, be it

Resolved: That Chapter II, Section 3(c) be amended to read as follows: (Deleted portions in parentheses; new portion underlined.)

Qualifications for Associate Members. To be eligible for election to Associate Membership in a component society, an applicant must possess all the qualifications necessary for active membership except that he shall not be engaged in the private practice of medicine and need not hold a license to practice medicine or surgery granted by the Board of Medical Examiners. (For the purposes of this section, a doctor of medicine engaged in the private practice of medicine is any physician who receives his principal compensation for professional services on a fee basis.) *Associate Membership shall be granted at the discretion of the local medical society governing body.*

ACTION: *Adopted by House.*

BYLAW AMENDMENT 16-65

Resolved: That the first two paragraphs of Chapter III, Section 1, subparagraph (8) of the CMA Bylaws be amended by deleting the language shown in parentheses and inserting the language in italics.

“(8) Suspension; Reinstatement of Suspended Member; Probation. A censure shall consist of an oral or written admonition and imposition of appropriate restrictions.

“A member may be suspended by imposing a limited period, not to exceed five years, during which he shall have no rights or privileges to vote,

hold office and participate in the activities of the society. Recommendations to the (county) component society Executive Committee concerning eligibility for (society insurance) benefits of membership may (and payment of dues shall) be specifically made in the decision of the Judicial Council in each case.

Dues shall not be imposed during a period of suspension, but payment of dues may be imposed during a period of probation.

ACTION: *Adopted by House.*

BYLAW AMENDMENT 17-65

Resolved: That Chapter VII, Section 9 of the CMA Bylaws be amended by addition of Sections (g) & (h), to read as follows:

(g) The Commission on Allied Health Professions, investigate and from time to time submit from time to time submit recommendations regarding the coordination of the activities of CMA in relation to the allied health professions and groups.

(h) The Commission on Hospital Affairs shall study, investigate and from time to time submit recommendations concerning hospital medical staffs and the activities of various Health Facilities Planning organizations. The surveys of medical staff activities under the Guiding Principles for Physician-Hospital Relations shall be carried out and guided by this Commission.

ACTION: *Adopted by House. In addition, House adopted statement of policy below concerning the Bureau of Research and Planning in lieu of section of resolution not favorably acted upon:*

1. *That the Bureau of Research and Planning should remain a Council committee.*

2. *That study of the “Role of Medicine in Society” should be continued by “an augmented planning section . . . created within the Bureau structure.”*

3. *The Bureau should, under the direction of the Council, work with the commissions and committees as it has done in the past, to develop research studies for long-range planning.*

4. *To insure that close cooperation will continue with the Council and the House of Delegates, a mechanism for tight and effective communications should be accomplished by encouraging a special liaison representative to the Council from the Bureau.*

BYLAW AMENDMENT 18-65

Resolved: That Chapter V, Section 2 of the Bylaws of the CMA shall be amended by deleting the words in parentheses and substituting the words in italics and to read as follows:

SECTION 2—Representation.

“Commencing with the (1964) 1967 regular session of the House of Delegates, each Component Society shall be entitled to (two) *one* Delegate(s)

plus one additional Delegate for each 100 active members or major fraction thereof, exclusive of the first 100, according to its membership as of the first day of September of the preceding year; and that every six years subsequent to (1964) 1967 the Council of the California Medical Association shall automatically review the size of the House of Delegates and make appropriate recommendations."

ACTION: *Referred to ad hoc committee of House. (See Constitutional Amendments 2-64 and 3-64, By-law Amendment 14-65.)*

BYLAW AMENDMENT 19-65

Resolved: That Chapter VII, Section 3, Paragraph (b) be amended by deleting the language shown in parentheses and substituting the language in italics.

(b) Members of the Commissions *and Bureaus (except the Scientific Board and the Judicial Commission)* of the Association shall serve for (terms of three years, and to the extent possible terms of office of commissioners shall be staggered) *terms of one year*. Terms of office shall expire at the close of the annual session of the Association, and prior to each annual session the Council shall nominate successors (to those commissioners whose terms will expire) and submit the names of such nominees to the House of Delegates. The House of Delegates may confirm or reject any nominee. If the House rejects any nominee, the Council shall immediately submit another nominee.

ACTION: *Adopted by House.*

BYLAW AMENDMENT 20-65

Resolved: That the Bylaws of the California Medical Association shall be amended to read as follows: (New portions in italics; deletions in parentheses).

CHAPTER XII—Referendum and Petition

SECTION 1—Reference of Resolutions to Vote of Members

The House of Delegates may, at any time, by a majority of those present, *and shall, upon the written request of 25 per cent of the members of a limited geographical Councilor district or 10 per cent of the California Medical Association active membership* refer any resolution or motion pending before it, to all of the active members of the Association for their vote for or against such resolution or motion. The Council may, by a two-thirds vote of all of its members, *and shall, upon the written request of 25 per cent of the members of a limited geographical councilor district or 10 per cent of the California Medical Association active membership*

and at any time within thirty (30) days after action was taken, refer any resolution or motion adopted by the House of Delegates, to all of the active members of the Association, for their vote for or against such resolution or motion. In addition, the Council may, at any time, by a two-thirds vote of (all of) its active members, *and shall, upon the written request of 25 per cent of the members of a limited geographical councilor district or 10 per cent of the California Medical Association active membership*, submit any resolution or motion pending before it to all of the active members of the Association for their vote for or against such resolution or motion.

SECTION 4—Effective Referendum

To be considered adopted, (any) *a* resolution or motion submitted to the membership by referendum, shall require the (same) proportionate affirmative vote, of those voting, that such resolution or motion would have required, to be adopted by the (body) House of Delegates or Council (from which such resolution or motion was referred. Any resolution or motion submitted to a referendum and adopted shall have the same force and effect as though adopted in the body from which it was referred, and shall be considered as having been so adopted by such body. A referendum shall not be effective or binding unless a majority of the active members vote thereon.) *and if the resolution or motion is one that has been submitted to the membership, upon the written request of 25 per cent of the members of a limited geographical active membership, said resolution or motion shall require a majority affirmative vote of those voting to be adopted.*

ACTION: *Referred to Council for consideration and report to House in 1966.*

BYLAW AMENDMENT 21-65

Resolved: That Chapter VIII, Section 6.5(b) of the Bylaws be amended to permit the Delegates of counties having more than one district councilor by majority vote of the Delegates to authorize and permit Alternate Delegates to vote in the official caucus of the Delegates during the annual session. Section 6.5(b) to hereafter read as follows:

Election of District Councilors by vote of the Delegates in caucus during Annual Session. In all Councilor Districts which have not adopted the direct member vote method, at least twenty-four (24) hours prior to the second meeting at each annual session of the House of Delegates, the Delegates from those Districts in which one or more councilor or vacancies exist or are about to occur, shall sep-

arately meet and the Delegates shall elect a Chairman and Secretary. The Delegates of said District may, at such time, by majority vote thereof authorize and permit Alternate Delegates to be seated and to vote at the official caucus of the County Delegation. The time and place of the caucus of each such District Delegation shall, in the absence of unanimous written consent of the Delegates of the District fixing the time and place, be fixed by the Speaker and announced at the first meeting of the House of Delegates at each annual session.

Nominations shall then be received for each individually numbered office in which a vacancy exists, and in each instance where there is more than one nomination, election shall be by secret ballot and majority vote of the Delegates and/or Alternate Delegates if authorized to vote, present and

voting. The chairman of the district delegation shall then report to the House of Delegates the results of the election, and when such report is made, the members elected shall thereupon assume office as district councilors, subject to the provisions of the Constitution and Bylaws.

In the event there are more than two nominees at any district caucus for any of the individually numbered offices of district councilor in said district and none of such nominees receives a majority of the votes cast on the first ballot, the nominee receiving the smallest number of votes on such ballot shall be eliminated and a second ballot shall be taken on the remaining nominees, such process to continue until one such nominee shall receive a majority of the votes cast.

ACTION: Adopted by House.

FOR ACTION IN 1966

Two constitutional amendments, one of which was withdrawn by the author, were introduced in the 1965 House of Delegates and, under the terms of the Constitution, must lie on the table until the next regular meeting of the House of Delegates. In addition, one Bylaw amendment was introduced at the second session of the House of Delegates and, since it cannot be acted upon for at least 24 hours, held over for action in the next regular meeting.

These proposed amendments are shown here for the information of the membership. In addition, the proposed Constitutional amendment is required to be printed in two issues of the journal before it comes before the House of Delegates for action.

CONSTITUTIONAL AMENDMENT 1-65

Introduced by: The Council

Subject: Composition of Council

Resolved: That Article III, Part B, Section 9, paragraph (c) of the Constitution of the California Medical Association be amended by deleting the words "without the right to vote" at the end of the section, so that the section will read:

"(c) One (1) member of the Executive Committee of the Scientific Board to be elected by the

Executive Committee of that body from representatives of the scientific sections or members-at-large."

BYLAW AMENDMENT 22-65

Introduced by: Walter F. Carpenter

Representing: 1965 Reference Committee No. 2

Subject: Payment of Dues

Resolved: That Chapter 2, Section 10, Paragraph (b) of the Bylaws of the California Medical Association be amended by deleting the language shown below in parentheses and by adding the language shown below in underlining, so that the section shall read:

"By Failure to Pay Dues. If the Annual assessments of dues, payable to this Association or the American Medical Association by any member of this Association, are not paid in full on or before (April) March 1, of any year, such member shall automatically lose his membership in this Association as of (April) March 1 of such year. The Council of this Association, in its discretion, upon payment of such unpaid dues, and any other assessments of dues accruing thereafter, may at any time reinstate such member."

Council Meeting Minutes

Tentative draft: Minutes of the 511th Meeting of the Council, Thunderbird Hotel, El Segundo, May 8, 1965.

The meeting was called to order by Chairman Anderson in the International Room of the Thunderbird Hotel, El Segundo, on Saturday, May 8, 1965, at 9:30 a.m.

Roll Call

Present were President Teall, President-Elect MacLaggan, Secretary Hosmer, Vice-Speaker Telford, and Councilors Iseuhour, Wilson, Melone, Todd, Goel, Taw, Bullock, O'Connor, Ham, Rogers, Maguire, Burnett, R. S. Wilbur, Miller, Watts, Fenlon, Kay, Anderson, Yant and Grunigen.

Absent for cause, Speaker Quinn, Editor Dwight L. Wilbur, Councilors Kaiser, Shaw and Doyle.

A quorum present and acting.

Present by invitation were Messrs. Hunton, Thomas, Clancy, Collins, Whelan, Clark, Eberlein, Edwards, Bowman, Goldman and Blackley, Doctor Miller and Mrs. Griffith of CMA staff; Messrs. Hassard and Huber of legal counsel; Messrs. Read, Salisbury, Putnam and Brown of the Public Health League of California; county executives Hackett of Alameda-Contra Costa, Geisert of Kern, Lingerfelt of Fresno, Dalbec and Baker of Los Angeles, Bannister of Orange, Dochterman of Sacramento, Donmyer of San Bernardino, Nute of San Diego, Neick of San Francisco, Monnich of San Joaquin, Marvin of Santa Barbara, Donovan of Santa Clara, Brown and York of Sonoma, Whitehall of Stanislaus and Bruce of Tulare; Doctor Harold Erickson of the State Department of Public Health; Dr. Lester McDonald of the State Department of Social Welfare; Doctor Robert B. Radl of the State Department of Employment; Robert Thomas, president of the California Hospital Association; Ray Bentley of California Physicians' Service; John Pompelli of the American Medical Association; Doctors T. Eric Reynolds, Arthur F. Howard, Bert S. Halter, Warren L. Bostick, Samuel R. Sherman, Dan O. Kilroy and others.

1. Minutes for Approval

(a) On motion duly made and seconded, minutes of the 509th meeting of the Council, held March 26-31, 1965, were approved with one correction in Item #7, to show three day treatment centers rather than five.

(b) On motion duly made and seconded, minutes of the 510th meeting of the Council, held March 31, 1965, were approved as drafted.

2. Membership

(a) A report of membership as of May 5, 1965, was presented and ordered filed.

(b) On motion duly made and seconded, 3,686 delinquent members, dues now paid, were voted reinstatement to membership.

(c) On motion duly made and seconded in each instance, 32 applicants were voted Associate Membership. These were: Cuatico Guillermo, Day, Robert Winsor, Reichman, Carl V., Alameda-Contra Costa County; DeLay, Chester Paul, Fleming, William J., Gates, F. Kenneth, Goorman, Jean Ray, Palazzo, Doris J., Rotenberg, Norman Philip, Rubenstein, Morton K., Shroff, Phyllis Faye, Wharton, George K., Miller, Arthur E., Los Angeles County; Raffety, John O., Mendocino-Lake County; Carson, Merl John, Murphy, William Patrick, Panagon, Nicholas S., Roy, Gustave A., Stothers, Robert J., Wagner, Gerald Andrew, Weissbart, Seymour, Orange County; Brandmeyer, Robert C., Freeman, John George, San Joaquin County; Anastasia, Peter James, Santa Barbara County; Bellville, J. Weldon, Hultgren, Herbert N., Lages, William L., Morell, Willard B., Santa Clara County; Stearns, Paul E., Sonoma County; Mace, Norman C., Vogeler, Edward Jerome, Jr., Weinert, Liselotte, Ventura County.

(d) On motion duly made and seconded, 18 applicants were voted Retired Membership. These were: Bailey, Elmore R., De La Reina, Solomon, Goin, Lowell Sidney, Hewitt, George W., Naftzger, J. Blane, Thomas, Gilbert Joshua, Wanita, George N., Warner, Horace E., Los Angeles County; Dawson, William A., Lewis, Ernest V., Raitt, G. Emmett, Orange County; Farrell, Leo, Sacramento County; Cooke, William C., Stone, Berenice I., Sundberg, R. H., Wuerthele, Herman W., San Diego; Cowan, Clarence, Wagner, Richard J., San Francisco County.

(e) On motion duly made and seconded, 21 members were voted a reduction of dues for reasons of prolonged illness or postgraduate study.

3. Commission on Hospital Affairs

Doctor Bert S. Halter, chairman of the Commission on Hospital Affairs, reviewed the history of the hospital staff survey program since its start in 1960, pointing out that about one-third of the hospitals in the state had been covered to date. For the future the commission has proposed that the state be divided into sections and a schedule of survey trips

planned for each area. The hospitals would then be encouraged to apply for surveys during the scheduled period.

ACTION: *Proposed sectioning and scheduling plan for hospital staff surveys approved.*

4. California Hospital Association

Mr. Robert Thomas, president of the California Hospital Association, reported that the association has changed its membership requirements to provide that an applicant hospital for provisional membership must demonstrate that its medical staff and governing board have approved and requested a survey under the Guiding Principles for Physician-Hospital Relations and that to gain full membership a hospital must show that it has accepted the survey results.

Mr. Thomas further reported that the association was supporting various legislative positions of the CMA in regard to medical examiners' bills and that a committee on regional hospital planning has been appointed to coordinate hospital efforts with those of the CMA in the field.

5. Report of the President

President Teall reported that AB 760, a measure sponsored by the Association to extend the provisions of medical services to the medically indigent, had been amended by the author, Dr. Casey, and the amended version had been approved by the Assembly Committee on Social Welfare.

Doctor Teall also reported on his meeting with the western section of the Clinic Managers of America, at which that organization voted to support the CMA position on pending federal legislation, HR 6675.

6. Federal Legislation

Doctor Teall reviewed the Association's position on HR 6675, which has been approved by the House of Representatives and is now before the Senate Committee on Finance. He is scheduled to testify before that committee on May 11 and he presented to the Council the testimony he proposes to give.

Councilors R. S. Wilbur and Malcolm S. M. Watts, both of whom had already testified before the Senate Committee on Finance, reported their testimony and impressions. Doctor Wilbur spoke as an individual and Doctor Watts as representing the American Society of Internal Medicine.

7. California College of Medicine

Doctor Warren L. Bostick, dean, reported that the California College of Medicine has now been accepted as a part of the University of California

and would receive financial assistance from the state. Tuition fees for students remain at previous levels but may be reduced when state funds are available.

8. State Department of Public Health

Doctor Harold Erickson reported that the department has met with legislative representatives on the departmental budget. He also reported that a legislative measure has been introduced which would combine the state Civil Defense and National Guard into a new State Department of Public Safety. He also reported a pilot project in Orange County which would inject treated sewage water into wells for the purpose of raising the subsurface water table.

Doctor Erickson requested assistance in the securing of voluntary reports on the incidence of German measles in children and pregnant women. Such reporting is not mandatory but in view of the epidemic proportions of rubella in other areas the state department is attempting to receive reports from all possible sources.

9. State Department of Social Welfare

Doctor Lester McDonald, medical director, reported that within a few days the department would welcome Dr. William Beachel as temporarily in charge of medical programs. Doctor McDonald also reported that Mr. Jack Wedemeyer, department director, is attempting to secure exemption from civil service merit examinations for physicians and other professional personnel who hold licenses from state boards.

ACTION: *Voted to support program for exemption from civil service merit examinations for physicians licensed by the state and serving as welfare consultants in state and county welfare departments.*

10. State Department of Employment

Doctor Robert B. Radl, medical director of the State Department of Employment, outlined the department's needs for 1,800 to 2,000 physical examinations before June 30, covering applicants for Job Corps programs. A fee of \$15 is allowed for the examination, plus \$2 for urine examination. Serology is to be sent to state laboratories. He asked the cooperation of component medical societies in developing lists of physicians who would accept these examinations in a crash program.

11. California Physicians' Service

Doctor T. Eric Reynolds, president of California Physicians' Service, reported that Resolutions No. 1-65 and 65-65 of the 1965 House of Delegates presented problems on which discussion has been held at length in the past. He offered the services and technical knowledge of CPS in assisting the CMA-

CPS and CMA-CHA Liaison Committees, respectively, in their studies of the problems presented. (Resolution 1-65 pertains to the difference in payments to member and non-member physicians where major medical care is provided beyond the basic coverage. Resolution 65-65 relates to the difference in fee payments of radiologists in and out of hospitals.)

12. Bureau of Research & Planning

Doctor Samuel R. Sherman, bureau chairman, reported that the findings of the Committee on the Role of Medicine in Society would play a large part in the planning functions of the bureau approved by the House of Delegates. He asked authority for copies of the second progress report of this committee to be sent to medical schools, medical libraries and other professional organizations, without the necessity of waiting for distribution of the report to the CMA membership.

ACTION: Motion to table request defeated.

ACTION: Voted that CMA members be advised through CMA News of Availability of report on request and that pending such notification all requests for external distribution be brought to the Council for approval.

Doctor Sherman also reported that the bureau had met with representatives of the California Heart Association to discuss the report of Doctor Michael E. DeBakey, who headed a presidential commission to investigate the care of cases of heart disease, cancer and stroke. The bureau believes that the establishment of regional centers for the program, as proposed in the commission's report, might fragment the medical profession to the detriment of the patient. A meeting is planned with Doctor DeBakey in San Francisco on June 5, when deans of the medical schools will be invited to attend.

Doctor Sherman requested authority for the bureau to proceed, under a grant from the Department of Health, Education and Welfare, to make a study of the availability of medical knowledge in areas remote from medical centers.

ACTION: Authority granted for study of availability of medical knowledge in areas remote from medical centers.

Doctor Sherman further proposed that brief scientific items be published in CMA News if the Commission on Communication approves.

ACTION: Proposed scientific digests referred to Commission on Communications and to the Scientific Board for study and recommendations.

Mr. Klutch reported on his attendance at a meeting of the New York Academy of Medicine on the subject of "closing the gaps in the availability of medical advances."

13. Commission on Medical Services

Doctor Arthur F. Howard reported on problems with the schedule of allowances of the Office of Dependents' Medical Care of the Department of Defense and urged that the California delegation to the American Medical Association be asked to have the AMA bring its influence into the continuing discussions. He presented a resolution as a suggestion to solicit AMA assistance.

ACTION: Resolution approved and ordered sent to AMA delegation for action at AMA House of Delegates next month.

14. 1965 House of Delegates Resolutions

Resolutions approved or referred by the 1965 House of Delegates were reviewed and recommendations for action or referral to commissions or committee for implementation were approved.

ACTION: Council voted to request emergency meeting of AMA House of Delegates in Washington, D.C. as authorized by CMA House of Delegates. Doctor Teall will transmit this request to AMA.

15. Committee on Committees

Chairman MacLaggan of the Committee on Committees offered the following nominations:

Program committee for component societies' officers' conference: L. Morgan Boyers, Sacramento, chairman; Henry V. Eastman, Tustin; Robert P. Klinefelter, Salinas; Stanwood S. Schmidt, Eureka; Stanford Furer, Los Angeles; Llewellyn Wilson, Anaheim; Edgar Wayburn, San Francisco, consultant.

Committee on Insurance and Prepayment: Ralph W. Burnett as chairman and as member of Commission on Medical Services, vice Dave F. Dozier.

Committee on Occupational Health and Rehabilitation: Thomas Gucker, III, Los Angeles, vice Vernon Nickel.

Ad hoc committee on Multiple Laboratory Procedures: Justin Dorgeloh, Piedmont, an additional member.

Committee on Rural Health: Carroll W. Goss, Lamont, as additional member.

Board of Nurse Examiners: Doctors Gerald Scarborough, Leon P. Fox and Arthur A. Kirchner to be nominated for appointment as members of advisory board.

ACTION: Above nominations approved and appointments voted as indicated.

16. Finance Committee

Chairman Harold Kay of the Finance Committee presented the request of the California Commission for the Accreditation of Nursing Homes and Related Facilities for a contribution of \$2,750 to assist

in financing operations in the coming year. The Finance Committee approved the request and asked favorable action.

ACTION: Appropriation of \$2,750 to California Commission for Accreditation of Nursing Homes and Related Facilities approved by required three-fourths vote.

Chairman Isenhour of the ad hoc Committee on State Fee Schedules requested appropriation of \$4,000 to finance committee activities for coming year.

ACTION: Appropriation of \$4,000 voted for ad hoc Committee on State Fee Schedules by required three-fourths vote.

17. Committee on Legislation

Doctor Dan O. Kilroy, chairman of the Committee on Legislation, reviewed a series of measures pending before the State Legislature. Bills not previously acted upon for the support or opposition are listed below:

AB 2142—to establish Department of Geriatrics in Health & Welfare Agency. *Voted to oppose.*

AB 1681—to permit drawing of blood from prisoners on accelerated schedule. *Committee on Blood Banks to advise Committee on Legislation on dangers of serum hepatitis from proposed program.*

AB 827 and SB 84—To require oral or written prescription for sale of cough medicines containing codein. *Voted to support.*

SB 1134—medical fees for industrial cases to be at same level as paid for general care in community. *Support vigorously.*

AB 2482 and AB 2484—state plans for health and hospital insurance. *Voted to oppose.*

SB 543—hospital planning. *Voted to join California Hospital Association in opposing.*

SB 1314—to provide that practicing physician on staff of a district hospital may not serve on the board of trustees of the hospital. *Voted to urge that all appropriate legislation concerning district hospitals be assigned for interim study.*

AB 2359—to require that hospital interns be paid minimum of \$1.25 per hour plus room and board. *Voted to oppose.*

SB 602—and SB 603—CMA bills to establish “little Keogh” laws in California for retirement funds for self-employed. *Voted to support.*

AB 305—to permit county hospital residents to serve maximum of 26 months without taking state medical board examinations; present law requires them to take next available examination. *Voted to oppose.*

ACTION: As noted at end of each entry above.

Mr. Read reported that 5,018 bills had been in-

troduced in present session, that 328 require constant watching to protect medical interest and that the regular legislative session must end by June 18.

18. California Medical Education & Research Foundation

Chairman Teall of the California Medical Education & Research Foundation reported that the directors had approved a plan proposed for securing funds for additional research activities.

19. Ad Hoc Committee on Radiology

Councilors Rogers, reporting for the ad hoc Committee on Radiology, reported a meeting with representatives of the California Radiological Society, at which plans were made to survey x-ray films paid for in Kern and Santa Clara Counties by California Physicians' Service in the first three months of 1965 for four common procedures.

20. Commission on Communications

Chairman Todd of the Commission on Communications reported on a commission meeting held the preceding evening, at which reaffirmation of the interagency campaign to discourage smoking by youths was voted. The commission also voted to explore the use of the present Health Tips material on radio and television.

Doctor Todd also reported that the commission had voted to continue, through the Medical Executives Conference, a campaign on medical and paramedical courses.

21. Committee on Health Facilities Planning

Doctor Taw reported on consideration given by the Committee on Health Facilities Planning to Senate Bill 543 as amended, including the creation of an appeal body without specific authority or limitation. His committee recommends that the CMA work with the California Hospital Association in forming a voluntary statewide health facilities planning committee, with an appeal body as an integral part.

ACTION: Approval voted for information of statewide voluntary health facilities planning committee, to represent CMA, CHA, nursing homes, the public and others.

Time and Place of Next Meeting

The chairman announced that the next Council meeting would be held at the Hilton Inn, San Francisco Airport, on Saturday, June 12, 1965.

Adjournment

There being no further business to come before it, the meeting was adjourned at 4:40 p.m.

CARL E. ANDERSON, M.D., *Chairman*

MATTHEW N. HOSMER, M.D., *Secretary*

plan to participate

CALIFORNIA MEDICAL ASSOCIATION

1966 ANNUAL SCIENTIFIC ASSEMBLY

Biltmore Hotel • Los Angeles • March 20-23

FEATURED SUBJECT

CURRENT CONCEPTS IN THERAPY: *Point and Counterpoint*

Coronary Artery Disease • Gastrointestinal Hemorrhage • Renal Failure

FIRST CALL FOR

{	<i>Scientific Papers</i>
	<i>Medical Motion Pictures</i>
	<i>Scientific Exhibits</i>

★ **If you have a paper** you'd like to present to your colleagues during their section meeting . . . write today to your section secretary (names and addresses of scientific section officers may be found on page 6, Advertising Section of *California Medicine*). Presentations are not limited to "Current Concepts in Therapy."

★ **If you have a motion picture or exhibit** . . . write to the California Medical Association Committee on Scientific Assemblies, 693 Sutter Street, San Francisco 94102, for application forms.

PLANS FOR THE 1966 ANNUAL SCIENTIFIC ASSEMBLY ARE NOW IN PROGRESS
PLAN **YOUR** CONTRIBUTION TO THE PROGRAM **TODAY**

In Memoriam

ATKINSON, DOROTHY WELLS, Windsor (Sonoma County). Died April 21, 1965, in San Francisco, aged 71. Graduate of the University of California School of Medicine, Berkeley-San Francisco, 1920. Licensed in California in 1920. Doctor Atkinson was a member of the San Francisco Medical Society.



AVERY, JOHN THOMAS, San Leandro. Died April 7, 1965, in San Leandro, aged 62, of heart disease. Graduate of the College of Osteopathic Physicians and Surgeons, Los Angeles, 1944. Licensed in California in 1944. M.D. degree from the California College of Medicine, 1962. Doctor Avery was a member of the Alameda-Contra Costa Medical Association.



BLOCK, COLEMAN ALEX, San Francisco. Died April 19, 1965, in San Francisco, aged 70. Graduate of the University of Illinois College of Medicine, Chicago, 1923. Licensed in California in 1926. Doctor Block was a member of the San Francisco Medical Society.



BOHMAN, GUNNAR E., Van Nuys. Died May 8, 1965, in Los Angeles, aged 55. Graduate of the College of Medical Evangelists, Loma Linda-Los Angeles, 1945. Licensed in California in 1953. Doctor Bohman was a member of the Los Angeles County Medical Association.



BURT, FREDERICK B., Los Angeles. Died April 19, 1965, in Los Angeles, aged 40. Graduate of Johns Hopkins University School of Medicine, Baltimore, Maryland, 1952. Licensed in California in 1959. Doctor Burt was a member of the Orange County Medical Association.



CAMPBELL, ALBERT JAMES, Santa Barbara. Died April 15, 1965, in Santa Barbara, aged 63. Graduate of the University of Toronto Faculty of Medicine, Ontario, Canada, 1927. Licensed in California in 1928. Doctor Campbell was a retired member of the Los Angeles County Medical Association and the California Medical Association, and an associate member of the American Medical Association.



OLSON, ROBERT ALVIN, Monterey Park. Died April 24, 1965, in Monterey Park, aged 44, of heart disease. Graduate of Hahnemann Medical College and Hospital of Philadelphia, Pennsylvania, 1945. Licensed in California in 1948. Doctor Olson was a member of the Los Angeles County Medical Association.



PATTERSON, WILLIAM V., Carmichael. Died March 5, 1965, in Sacramento, aged 71, of prostatic carcinoma. Graduate of the College of Osteopathic Physicians and Surgeons, Los Angeles, 1933. Licensed in California in 1933. M.D. degree from California College of Medicine, 1962. Doctor Patterson was a retired member of the Forty First Medical Society and the California Medical Association, and an associate member of the American Medical Association.



RICHARDS, DEXTER NEWELL, Berkeley. Died April 23, 1965, in Berkeley, aged 82, of prostatic carcinoma. Gradu-

ate of Harvard Medical School, Boston, Massachusetts, 1911. Licensed in California in 1912. Doctor Richards was a retired member of the Alameda-Contra Costa Medical Association and the California Medical Association, and an associate member of the American Medical Association.



SCHLUTER, HANS FRANK, Carmichael. Died April 18, 1965, in Sacramento, aged 71. Graduate of the University of California School of Medicine, Berkeley-San Francisco, 1922. Licensed in California in 1922. Doctor Schluter was a retired member of the Sacramento County Medical Society and the California Medical Association, and an associate member of the American Medical Association.



SHENK, FREDERICK P., Santa Cruz. Died April 16, 1965, in Santa Cruz, aged 78. Graduate of Cleveland-Pulte Medical College, 1909. Licensed in California in 1921. Doctor Shenk was a member of the Santa Cruz County Medical Society.



SINAY, MAX, Long Beach. Died May 1, 1965, in Long Beach, aged 62. Graduate of the University of Illinois College of Medicine, Chicago, 1933. Licensed in California in 1942. Doctor Sinay was a member of the Los Angeles County Medical Association.



SPEAR, JOHN LESLIE, Santa Rosa. Died December 27, 1964, aged 72, of heart disease. Graduate of Hahnemann Medical College of the Pacific, San Francisco, 1918. Licensed in California in 1919. Doctor Spear was a retired member of the Sonoma County Medical Society and the California Medical Association, and an associate member of the American Medical Association.



STIRLING, ARTHUR CHURCHILL, North Hollywood. Died April 11, 1965, in Encino, aged 53, of hepatitis and cirrhosis. Graduate of the University of Rochester School of Medicine and Dentistry, 1940. Licensed in California in 1948. Doctor Stirling was a member of the Los Angeles County Medical Association.



TOWNSEND, KENNETH, Lake Arrowhead. Died April 7, 1965, in San Bernardino, aged 66. Graduate of Northwestern University Medical School, Chicago, Illinois, 1927. Licensed in California in 1927. Doctor Townsend was a member of the San Bernardino County Medical Society.



TUCHE, RUSSELL J., Oakland. Died May 4, 1965, in Oakland, aged 58. Graduate of the College of Osteopathic Physicians and Surgeons, Los Angeles, 1932. Licensed in California in 1932. M.D. degree from the California College of Medicine, 1962. Doctor Tuche was a member of the Alameda-Contra Costa Medical Association.



WILLIAMS, DONALD F., San Francisco. Died December 21, 1964, in San Francisco, aged 39, of a coronary. Graduate of the University of Illinois College of Medicine, Chicago, 1947. Licensed in California in 1948. Doctor Williams was a member of the San Francisco Medical Society.

PUBLIC HEALTH REPORT

MALCOLM H. MERRILL, M.D., M.P.H.
Director, State Department of Public Health

A MAJOR EPIDEMIC OF RUBELLA occurred in the eastern part of the nation in 1964. The Pacific Coast at that time experienced some rise in incidence which did not reach epidemic levels.

The story has changed this year, however, with a pronounced increase in all three coastal states. For the week ended April 10, Washington State reported a four-fold increase in the number of cases of rubella over the number reported a year ago. Oregon reported 7,912 cases in the first three months of this year as against 862 in 1964. The disease is reportable in Washington and Oregon, but not in California.

Here, several health departments have voluntarily reported the number of cases of Rubella occurring in their jurisdictions. Although only a fraction of the actual number of cases is reported, the broad trends of the disease occurrence are clearly discernible. The number reported on this voluntary basis the first four months, 4,500, is already considerably larger than the 2,500 reported for all 1964.

While the disease itself usually is of no consequence, its significance lies in the frequency of abortions and congenital malformation which may ensue when rubella occurs in a pregnant woman during the first trimester of pregnancy.

It has been known for some time that approximately 10 to 20 per cent of women who experience this disease within the first trimester of pregnancy will have malformed children. This figure also varies within the first trimester in that when the disease occurs during the first month of pregnancy the proportion of malformations is higher than when it occurs in the second or third month.

Many pregnancies are not carried to term. The extent of fetal loss is unknown. Some of the congenital malformations, such as mental retardation or visual or hearing defects, are not detectable at birth but will come to light several years later. Thus the full extent of the problem may not be apparent at first.

While this information in general has been known for some time, only recently has it been possible to determine the presence of antibody by laboratory test.

Techniques are slow and cumbersome but can now be applied on a limited basis. We are therefore in a much better position to determine the mother's immune status at the outset of pregnancy, and thus assist in the more definitive diagnosis of rubella which up to now had to be entirely based on clinical judgment.

In several recent studies where pregnant women were tested for the presence of rubella antibody it was found that 80-85 per cent had antibody and therefore were presumed to be immune to the disease. However, there were significant differences by regions and age, and the percentage of patients without neutralizing antibody ranged from 8 to 33. If we can identify those already immune at the time of their exposure to rubella, we need have no further concern about them.

Within the past few months it has been found that infants born of infected mothers may still be excreting the virus at birth, and in some instances they appear to have infected the attending nurses and physicians.

We need more basic information about the disease, its distribution in the population, the development and duration of immunity, and the extent of fetal loss and damage to the newborns and possible effectiveness of gamma globulin. There are a number of unresolved questions about the management of pregnant mothers exposed to the disease.

The scientific evidence at present is inconclusive as to the effectiveness of administering gamma globulin to protect against malformations in the offspring of a mother exposed to rubella. Our present knowledge is summarized by the U.S. Surgeon General's Advisory Committee on Immunization. In brief, the committee commented:

"Although gamma globulin in adequate dosage has been shown in several studies to suppress the clinical manifestations of rubella, evidence that it will or will not prevent congenital malformations among children of exposed mothers is lacking. However, neither the experimental studies nor the isolated individual case observations serve directly to answer the question as to whether gamma globulin may exhibit a relative efficacy in protection against congenital malformations in the infant."



WOMAN'S AUXILIARY

to the California Medical Association

THE MEMBERSHIP COMMITTEE of the Woman's Auxiliary has only one permanent project—recruiting new members and retaining those who are already members. Both of these objectives can be accomplished by an exciting new project, **Joint Husband-Wife Membership**.

In her report to the AMA House of Delegates at the Clinical Convention last November, Mrs. William H. Evans, President of the Woman's Auxiliary to the American Medical Association, outlined several ways in which the Auxiliary can be put to work to help America's physicians. Mrs. Evans told the House: "There is a very large gap between the AMA membership and that of the Auxiliary—more than 110,000. It is our hope that each local society will help us close this gap by creating a joint husband-wife membership. Through this, the wife automatically becomes an Auxiliary member when her husband is accepted into the medical society. The potential that lies within a group of 86,000 dedicated women is great . . . I ask of you—put us to work."

In response to Mrs. Evans' report, the AMA House unanimously adopted a resolution which urged state and local medical societies "to support fully and to aid and encourage the Woman's Auxiliary to the American Medical Association in all its endeavors, particularly in the joint husband-wife membership project." The Board of Directors of the Woman's Auxiliary to the American Medical Association has also approved the joint husband-wife membership described by Mrs. Evans to the AMA House of Delegates.

The California Medical Association recommended joint husband-wife membership three years ago. Now it is up to each county to study the feasibility of this project. The first step is to arrange a meeting with the county medical association's president and appropriate executive committee members with representatives from its Auxiliary (county, executive council and district presidents; treasurer or finance chairman).

There are approximately 23,000 members in the California Medical Association and to date Auxiliary membership is 8,664. The potential in California is overwhelming. The Auxiliary can contribute substantially to the medical association in the field

of community service and in terms of public relations, but to do so will need increased income. Income could be increased by raising dues, true, but this would not get rid of an ever-present inequity, the inequity of the members who are willing to do the Auxiliary's work also carrying the financial support of the organization.

Since all physicians benefit from the Auxiliary's efforts for organized medicine, would it not be equitable that the expenses of the Auxiliary's work and its activities be shared by all the physicians' wives. Therefore I urge each county medical association to give consideration to the project, **Joint Husband-Wife Membership**.

For counties (five in California) that have already put joint membership into effect, I would suggest a second goal—**Orientation of New Members**. Orientation has a twofold value—value to new members learning about medical organizations and Auxiliary work and value as review for present members. Since Auxiliary work is based on the principles of loyalty and service to the medical profession, orientation should include:

1. A brief history of the American Medical Association and its Woman's Auxiliary; our state medical association and its Auxiliary.
2. Lines of communications between the three levels of Auxiliary organization (national, state and county) and the component medical associations.
3. A program on community service and how the Auxiliary has participated over the years.
4. A program of primary importance on medical legislation, reviewing legislation in the past but placing emphasis on the current scene.
5. A program on medical ethics for physicians' wives.

After the recruitment of new members comes the challenge to make them well informed physicians' wives with a sense of loyalty to the medical profession and to their community. The privilege of becoming an informed Auxiliary member is an incentive to belonging.

MRS. FENIMORE E. DAVIS
*First Vice-President
Woman's Auxiliary to the
California Medical Association*

NEWS & NOTES

NATIONAL • STATE • COUNTY

LOS ANGELES

Dr. Franz K. Bauer, professor of medicine at the University of California, Los Angeles, has been appointed associate dean of the University of Southern California School of Medicine, effective July 1. The announcement was made by Dr. Roger O. Egeberg, USC dean of medicine.

* * *

The Los Angeles Pediatric Society elected the following new officers: President, Dr. Harvey Shipper; vice-president, Dr. Paul F. Wehrle; secretary-treasurer, Dr. Lafayette E. Burns.

The Society announced its twenty-second annual Brenne-
mann Memorial Lectures to be held September 15-16, 1965, at the International Hotel, in Los Angeles. Guest speakers for the occasion will be Dr. Robert A. Aldrich, professor of pediatrics, University of Washington School of Medicine, and Dr. Jerome L. Schulman, director of the Child Guidance Clinic, Childrens Memorial Hospital, Chicago.

* * *

Dr. George J. Hummer, Santa Monica, has been elected president of the Southern California chapter of the Society of Nuclear Medicine. Ralph Adams, a radiation physicist, San Gabriel, has been named vice-president, and Dr. Paul M. Meadows, San Marino, secretary-treasurer.

GENERAL

"Cancer in California," a new 75-page illustrated booklet prepared by the staff of the California Tumor Registry, California State Department of Public Health, is available, without charge, to all interested professional persons and agencies, according to an announcement from the Tumor Registry. The booklet provides a comprehensive view of cancer in the state by presenting information on cancer deaths and illness, the concentration of certain forms

THE CALIFORNIA HOSPITAL ASSOCIATION has taken steps to insure that its membership is composed entirely of institutions that are either approved by the Joint Commission on Accreditation of Hospitals or that subscribe to the *Guiding Principles for Physician-Hospital Relationships* which were developed by the CHA and the California Medical Association. Changes in membership requirement recently adopted by the CHA Board of Trustees will have that effect.

One significant change requires that "both the medical staff and governing Board of all provisional member hospitals must have approved, and requested survey under, the CMA 'Guiding Principles for Physician-Hospital Relationships' . . ."

New provisional members will have up to two years to meet new standards.

of the disease in particular segments of the population, and the extent of survival. It also contains information on the occurrence of the disease in relation to social class; the association of smoking and lung cancer; and the effect cytologic examination has had on cancer of the cervix uteri. Requests for copies should be directed to the California Tumor Registry, State Department of Public Health, 2151 Berkeley Way, Berkeley, California 94704.

* * *

Dr. William H. Thompson, San Mateo, has been elected chairman of the Board of Trustees of California Physicians' Service-Blue Shield. He succeeds Dr. Paul Hoagland of Pasadena as the top policy-making officer of the health plan which now covers more than one million Californians.

Dr. Thompson has served on the Blue Shield Board of Trustees for the past five years, and has been active on Board committees. He is past president of the San Mateo County Medical Society and has served as a delegate to the California Medical Association.

Others elected to serve as officers of the California Blue Shield plan are Dr. Burt Davis, Palo Alto, vice chairman; Dr. Herman Stone, Riverside, secretary; Dr. Carl Horn, Sacramento, assistant secretary; Dr. Bert Halter, San Francisco, treasurer; and John Cowee, Berkeley, dean of the University of California School of Business Administration, assistant treasurer.

Doctors Roberta Fenlon, San Francisco; Richard F. Altman, Newport Beach; and Donald R. Fitch, Glendale, took their posts as new members of the CPS Board of Trustees.

Dr. T. Eric Reynolds, Oakland, was re-elected president of the organization, and E. R. Paolini of Redwood City was renamed executive vice-president and chief executive officer.

*15th ANNUAL
regional
postgraduate
institute*

*HARVEY'S RESORT
HOTEL
Lake Tahoe
June 24-26, 1965*

SACRAMENTO VALLEY COUNTIES

Presented cooperatively by Sacramento Valley Counties Medical Societies, Continuing Education in Medicine and Health Sciences, University of California School of Medicine, Los Angeles, and the Committee on Continuing Medical Education, California Medical Association. A 12½-hour course.

HOST: Sacramento County Medical Society.

Regional Co-Chairmen: Dixon L. Hughes, M.D., and Philip Reilly, M.D.

INSTITUTE FEE: \$15.00. For additional information contact Continuing Medical Education office, California Medical Association, 693 Sutter Street, San Francisco 94102. All California Medical Association members and their families are cordially invited to attend.

**ADOLESCENT PROBLEMS: Emotional . . . Medical . . . Surgical . . .
Dermatological . . . Athletic . . . Developmental . . . Sexual . . . Legal**

THURSDAY, JUNE 24

12:30—Registration

Afternoon Session

- 1:15—Welcome: Donald P. Hause, M.D.
1:30—What and Why of Adolescent Medicine—Felix Heald, M.D.
2:15—Normal Psychological Development — Lewis Judd, M.D.
2:45—Normal Physical and Physiological Development—Leonard Linde, M.D.
3:30—PANEL DISCUSSION—Sexual Problems of Adolescence—Charles Cutler, M.D., Chairman, Erwin Eichhorn, M.D., Felix Heald, M.D., Lewis Judd, M.D., John Knowles, M.D., Philip Reilly, M.D.

FRIDAY, JUNE 25

Morning Session

- 9:00—The Adolescent and His Knees—Martin Blazina, M.D.
9:30—Management of Acne—Stanley Bierman, M.D.
10:30—CONCURRENT PANEL DISCUSSIONS (you may go to one of your choice):
A. Orthopedics in Adolescence—Eugene Smoley, M.D., Chairman, Martin Blazina, M.D., James Farley, M.D.
B. Office Management of Skin Problems in Adolescence—Martin Asch, M.D., Chairman, Stanley Bierman, M.D., James Dowrie, M.D., Richard Reintson, M.D.
12:15—Luncheon (Wives are Welcome): The Treatment of the Minor and the Law—Robert D. Huber, Sherman C. Wilke

Afternoon Session

- 2:00—Obesity—Felix Heald, M.D.
2:30—Menstrual Problems—J. G. Moore, M.D.
3:30—CONCURRENT PANEL DISCUSSIONS (you may go to one of your choice):
A. Endocrine Problems—Norman Eade, M.D., Chairman, Felix Heald, M.D., Leonard Linde, M.D., B. J. Siebenthal, M.D., Suzanne Snively, M.D.
B. Gynecological Problems—John Miller, M.D., Chairman, Abe Berman, M.D., Erwin Eichhorn, M.D., J. G. Moore, M.D.
C. Emotional Problems—Edward Rudin, M.D., Chairman, Arthur Hansen, M.D., Lewis Judd, M.D., John Knowles, M.D.

SATURDAY, JUNE 26

Morning Session

- 9:00—Tumors in Adolescence—Felix Heald, M.D.
9:30—Role of the Non-Psychiatric Physician in Recognition and Treatment of Emotionally Disturbed Adolescents—Lewis Judd, M.D.
10:30—CONCURRENT PANEL DISCUSSIONS (you may go to one of your choice):
A. Malignancies—Richard Shaw, M.D., Chairman, J. G. Moore, M.D., Richard Ripple, M.D., Charles Smart, M.D.
B. Cardiovascular Problems—Glen Cayler, M.D., Chairman, Leonard Linde, M.D., Kathleen Mannion, M.D., Donald Weaver, M.D.

EDUCATION NOTICES

Meetings and Courses

COMMITTEE ON CONTINUING MEDICAL EDUCATION

THIS BULLETIN of the dates of continuing education programs and the meetings of various medical organizations in California is supplied by the Committee on Continuing Medical Education of the California Medical Association. In order that they may be listed here, please send communications relating to your future meetings or postgraduate courses to Committee on Continuing Medical Education, California Medical Association, 693 Sutter Street, San Francisco, California 94102.

KEY TO ABBREVIATIONS AND SYMBOLS

Medical Centers and CMA Contacts
for Postgraduate Course Information

CMA:	California Medical Association For information regarding Postgraduate Institutes and Circuit Courses, Contact: Continuing Medical Education, California Medical Association, 693 Sutter Street, San Francisco 94102. PROspect 6-9400, Ext. 68.
LLU:	Loma Linda University For information on courses contact: W. F. Norwood, Ph.D., Assistant Dean and Chairman, Division of Continuing Education, Loma Linda University School of Medicine, 1720 Brooklyn Ave., Los Angeles, California 90033, ANgeles 9-7241, Ext. 214.
PRES. MED. CTR.	Presbyterian Medical Center For information on courses contact: Arthur Selzer, M.D., chairman, Education Committee, Presbyterian Medical Center, Clay and Webster Streets, San Francisco 94115. WEst 1-8000.
UCLA:	University of California at Los Angeles For information on courses for physicians or ancillary personnel contact: Thomas H. Sternberg, M.D., Assistant Dean and Head, Continuing Education, U.C.L.A. Medical Center, Los Angeles, 90024, 478-9711, Ext. 2114.
UCSF:	University of California, San Francisco For information on courses for physicians or ancillary personnel contact: Seymour M. Farber, M.D., Dean, Educational Services and Director, Continuing Education, University of California Medical Center, Room 565-U, San Francisco 94122, 666-1692.
USC:	University of Southern California For information on courses contact: Phil R. Manning, M.D., Associate Dean, Postgraduate Division, USC School of Medicine, 2025 Zonal Ave., Los Angeles 90033, CApital 5-1511, Ext. 300.
STAN:	Stanford University For information on courses for physicians or ancillary personnel contact: Roy Cohn, M.D., Associate Dean for Graduate Affairs, Stanford University School of Medicine, 300 Pasteur Drive, Palo Alto, Davenport 1-1200.

*Fee to be announced.

†Hours to be announced.

JUNE

June 16-19—**California Society of Anesthesiologists Biennial Meeting.** Sahara-Tahoe, Las Vegas, Nevada. Wednesday-Saturday. Contact: Lewis H. Lambert, M.D., chairman, 3001 Laurel Drive, Sacramento 25.

June 23-25—**Childrens Hospital Sixth Annual Pediatric Seminar.** Town and Country Hotel, San Diego. Wednesday-Friday. \$25. Contact: Richard L. Johnston, administrator, Childrens Hospital, 8001 Frost Street, San Diego 11.

June 23-25—**Treatment of Fractures.** USC at Los Angeles County Hospital. Wednesday-Friday. 22 hours. \$80.

June 24-26—**SACRAMENTO VALLEY COUNTIES—Regional Postgraduate Institute** presented by California Medical Association in cooperation with UCLA School of Medicine. Harvey's Resort Hotel, Lake Tahoe. Co-Chairmen: Dixon L. Hughes, M.D., 3320 White Oak Court, Sacramento; Philip J. Reilly, M.D., 6437 Fair Oaks Boulevard, Carmichael.

June 25-27—**Western Conference of Foundations for Medical Care.** Hotel del Coronado, San Diego. Friday-Sunday. Contact: Milo A. Youel, M.D., chairman, San Diego County Medical Society, 3427 Fourth Avenue, San Diego 92103.

June 30-July 4—**Seminars for General Practitioners UCLA at Lake Arrowhead Conference Center.** Wednesday-Sunday. 20½ hours. \$105.

JULY

July 11-14—**Advanced Seminars in Pediatrics: Endocrinology, Metabolism and Genetics.** UCLA at Lake Arrowhead Conference Center. Sunday-Wednesday. 17 hours. \$105.

July 15-16—**NORTH COAST COUNTIES—Regional Postgraduate Institute** presented by California Medical Association in cooperation with Loma Linda University School of Medicine. Eureka Inn, Eureka, Chairman: J. Roy Wittwer, M.D., 716 Harris Street, Eureka.

July 29-30—**Recent Trends in Strabismus Management and Treatment.** For physicians in Ophthalmology or EENT only. Thursday-Friday. \$60. Pres. Med. Ctr.

July 31-August 11—**Eighth Annual Postgraduate Refresher Course.** USC in Honolulu and Maui. Saturday-Tuesday except Sunday. 4 hours and 45 minutes each day. \$100.

AUGUST

August 15-18—**Advanced Seminars in Internal Medicine: Hypertension and Kidney Disease.** UCLA at Lake Arrowhead Conference Center. Sunday-Wednesday. 15½ hours. \$105.

August 18-22—**Advanced Seminars in Urology.** UCLA at Lake Arrowhead Conference Center. Wednesday-Sunday. 18 hours. \$110.

August 21-22—**Infertility.** UCLA. Saturday-Sunday. 14 hours. \$60.

August 30-September 2—**American Hospital Association.** San Francisco. Monday-Thursday. Contact: Edwin L. Crosby, M.D., director, 840 North Lake Shore Drive, Chicago 11, Illinois.

SEPTEMBER

September 2-April 14—**Stockton Postgraduate Study Club**. 1 Thursday a month: 9/2, 10/14, 11/4, 12/9, 1/6, 2/10, 3/3, 4/14. 16 hours. Contact: San Joaquin County Medical Society, P.O. Box 230, Stockton.

September 9-11—**Saint John's Hospital Annual Postgraduate Assembly**. Thursday-Saturday. Contact: John C. Eagan, M.D., director, 1328 Twenty-second Street, Santa Monica.

September 13-19—**Pediatric Allergies**. UCSF. Monday-Sunday.*†

September 14-November 30—**Medical Radio Conferences**. UCSF. Tuesdays.

September 15-16—**Los Angeles Pediatric Society Annual Brennemann Memorial Lectures**. International Hotel, Los Angeles. Wednesday-Thursday. 9/15: 4:00 p.m. to 10:00 p.m., 9/16: 9:00 a.m. to 4:30 p.m.

September 16-December 9—**Medical Radio Conferences**. UCSF. Thursdays.

September 20-23—**Recent Advances in Internal Medicine**. UCSF. Monday-Thursday.*†

September 21-October 26—**Specific Syndromes Associated with Mental Retardation**. UCSF at Sonoma State Hospital, Eldridge. Tuesdays.*†

September 22-December 15—**Psychotherapeutic Medicine for Non-Psychiatrists**. UCSF. Wednesdays.*†

September 23-October 28—**Preventive Psychiatry**. UCSF at Modesto State Hospital, Modesto. Thursdays.*†

September 25-26—**Child Psychiatry**. UCSF at Napa State Hospital, Imola. Saturday-Sunday.*†

September 25-26—**Manifestations and Therapy of Anxiety**. UCSF at Sutter Memorial Hospital, Sacramento. Saturday-Sunday.*†

September 28—**American Academy of Pediatrics, California Section III, Annual Seminar on Epilepsy**. Town and Country Hotel, San Diego. Tuesday. 4 hours. \$10. Contact: J. Richard Hill, M.D., 525 Hawthorn Street, San Diego.

September 29-30—**Los Angeles County Heart Association Annual Fall Symposium on Cardiovascular Disease**. Statler Hilton Hotel, Los Angeles. Wednesday-Thursday. 12 hours. Contact: Harold Miller, M.D., chairman, Professional Education Committee, 2405 West Eighth Street, Los Angeles 90057.

September 29-October 1—**San Francisco Heart Association Annual Postgraduate Symposium on Heart Disease**. St. Francis Hotel, San Francisco. Wednesday-Friday. 18 hours. Contact: Mrs. Frances MacKinnon, 259 Geary Street, San Francisco.

OCTOBER

October 1-2—**San Diego County Heart Association Annual Professional Symposium on Heart Disease**. Town and Country Hotel, San Diego. Friday-Saturday. 8 hours. Contact: James E. Lasry, M.D., chairman, Professional Education Committee, 3545 4th Avenue, San Diego 92103.

October 1-2—**Urology**. UCSF. Friday-Saturday.*†

October 5-November 30—**Evening Lectures in Medicine**. UCSF at Oakland Hospital, Oakland. Tuesdays.*†

October 7-9—**Obstetrics and Gynecology**. UCSF. Thursday-Saturday.*†

October 8-9—**Western Industrial Medical Association**. Hilton Hotel, San Francisco. Friday-Saturday. Contact: Christine Einert, M.D., 629 Euclid Avenue, Berkeley 94708.

October 9—**Immunological Disease and Infectious Disease in Children**. Children's Hospital Medical Center, 51st and Grove Streets, Oakland. Saturday. 7 hours. Contact: Children's Hospital Medical Center.

October 9-10—**Cytology for Pathologists**. UCSF. Saturday-Sunday.*†

October 12—**Northeastern California Rheumatoid Foundation Seminar: Medical and Surgical Aspects of Arthritis**. Mercy Hospital, Sacramento. Tuesday. Contact: Harold B. Strauch, M.D., 4101 J Street, Sacramento.

October 12-November 16—**Neuropsychiatry in Daily Practice**. UCSF at Agnews State Hospital, San Jose. Tuesdays.*†

October 15-16—**Central Nervous System Infections**. UCSF. Friday-Saturday.*†

October 15-16—**Logical Glaucoma Therapy**. UCSF. Friday-Saturday.*†

October 16—**Imperial County Medical Society Program on Emergency Room Treatment**. Barbara Worth County Club. Saturday. 8 hours. Contact: Imperial County Medical Society, El Centro.

October 20-April 20—**Basic Science Course in Ophthalmology**. UCLA. Wednesdays. Lecture: 49 hours, Lab: 31½ hours. \$175 for full course.

October 22-24—**California Society of Internal Medicine Annual Meeting**. Hotel Del Coronado, Coronado. Friday-Sunday. Contact: Nancy V. Louw, executive secretary, California Society of Internal Medicine, 350 Post Street, San Francisco 94108.

October 23—**Endocrine and Metabolic Disorders**. UCSF at Childrens Hospital, San Francisco. Saturday.*†

October 23-24—**Practical Management of Surgical Problems**. UCSF at Franklin Hospital, San Francisco. Saturday-Sunday.*†

October 24-27—**California Academy of General Practice Annual Scientific Assembly**. Statler Hotel, Los Angeles. Sunday-Wednesday. 13 hours. Contact: Mr. William W. Rogers, executive secretary, California Academy of General Practice, 9 First Street, Room 900, San Francisco.

October 29—**Kern County General Hospital Postgraduate Conference**. Kern County General Hospital, 1830 Flower Street, Bakersfield. Friday. 8 hours. Contact: George A. Paulsen, M.D., chairman, Postgraduate Conference Committee, Kern County General Hospital.

October 29-30—**Arthritis in Practice**. UCSF. Friday-Saturday.*†

NOVEMBER

November 5-6—**California Hospital Seminar on the Acute Abdomen**. California Hospital, 1414 South Hope Street, Los Angeles. Friday-Saturday. 12 hours. Contact: Kenneth L. Senter, M.D., Director of Medical Education, California Hospital.

November 5-6—**Diseases of the Biliary System.** UCSF. Friday-Saturday.*†

November 6-7—**Postgraduate Seminars in Psychiatry.** UCSF at Fresno Community Hospital, Fresno. Saturday-Sunday.*†

November 10—**The Southern California Annual Science Lecture of The American College of Physicians.** Statler Hilton Hotel, Los Angeles. Wednesday, 6:30 p.m. Contact: W. Philip Corr, M.D., Governor for Southern California, The American College of Physicians, 3660 Arlington Avenue, Riverside 92506.

November 11-13—**Gerontological Society.** Ambassador Hotel, Los Angeles. Thursday-Saturday. Contact: Mrs. Marjorie Adler, MA, Gerontological Society, 661 S. Euclid, St. Louis 63110.

November 12-13—**Kaiser Foundation Hospitals Symposium on Genetics.** Statler Hilton Hotel, Los Angeles. Friday-Saturday. Contact: Herman Weiner, M.D., Permanente Medical Group, 1505 North Edgemont, Los Angeles 90027.

November 13-14—**First Annual Clinical Cancer Conference.** UCSF. Friday-Saturday.*†

November 17—**Santa Barbara Cottage and General Hospitals Program on Advances in Medical Practice.** Santa Barbara Cottage Hospital. Wednesday. 3 hours. Contact: C. A. Domz, M.D., 317 West Pueblo, Santa Barbara.

November 19-20—**Musculoskeletal System: Congenital and Heritable Defects.** UCSF. Friday-Saturday.*†

DECEMBER

December 1-4—**Ophthalmology Symposium: Retinopathy and Diabetes.** UCSF. Wednesday-Saturday.*†

December 3-4—**Vectorcardiography.** UCSF. Friday-Saturday.*†

December 11—**Medical Emergencies.** Pres. Med. Ctr. Saturday.*†

December 11-12—**Psychiatric Perspectives in Medicine.** UCSF at Stockton State Hospital, Stockton. Saturday-Sunday.*†

Courses Offered Continuously or by Arrangement

LLU:

As Arranged—**Traineeships** in clinical and other departments are available by arrangement with department chairmen of the Postgraduate Division. 80 hours minimum.

Anesthesia, 6 months. 250-300 hours. \$350.

Pulmonary Diseases—can be arranged.

UCSF:

Continuously—Courses presented by special arrangement:

Anesthesia (Full time for one to three weeks or part time by arrangement).

Dermatology (Full time or part time by arrangement).

Principles and Clinical Uses of Radioisotopes (Full time, one to three months).

USC:

Continuously—**Basic Home Course in Electrocardiography.** One year postgraduate series, ECG interpretation by mail. Fifty-two issues \$100. Physicians may register at any time.

Advanced Home Course in Electrocardiography. One year postgraduate series, ECG interpretation by mail. Fifty-two issues \$85. Physicians may register at any time.

Audio-Digest Foundation

Audio-Digest Foundation (a non-profit subsidiary of the California Medical Association) provides by subscription twice-a-month tape-recorded summaries of leading national meetings and authoritative surveys of current literature. Seven separate services in: General Practice, Surgery, Internal Medicine, Obstetrics-Gynecology, Pediatrics, Anesthesiology, and Ophthalmology. A new Catalog of outstanding lectures and panel discussions in all areas of medical practice is also available. For information, write: Mr. Claron L. Oakley, Editor, 619 South Westlake Avenue, Los Angeles.

TO HAVE YOUR MEETING OR PROGRAM LISTED IN CALIFORNIA MEDICINE

FILL OUT AND MAIL THIS BLANK TO THE ADDRESS GIVEN

(COPY MUST BE RECEIVED NOT LATER THAN THE FIFTH OF THE MONTH PRECEDING ISSUE)

Continuing Medical Education, California Medical Association

693 Sutter Street, San Francisco, California 94102

NAME OF ORGANIZATION _____

MEETING OR PROGRAM _____

DATE _____ TIME _____

PLACE _____ FEE, IF ANY _____

CONTACT FOR INFORMATION: _____
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The Physician's BOOKSHELF

VASCULAR ROENTGENOLOGY—Arteriography, Phlebography, Lymphography—Robert A. Schobinger, M.D., F.A.C.A., F.I.C.A., S.G.P., Diplomate, American Board of Surgery; Diplomate F.M.H. in Surgery, Switzerland; and Francis F. Ruzicka, Jr., M.D., F.A.C.R., Director, Department of Radiology, The St. Vincent's Hospital and Medical Center, New York; Clinical Professor of Radiology, New York University School of Medicine, New York. The Macmillan Company, New York, 1964. 747 pages, \$35.00.

This handsome monograph is divided into five parts: general considerations, angiocardiology, arteriography, phlebography and lymphography.

The section on general considerations contains an interesting brief history of angiography, useful information on the various media available and the many techniques currently applicable.

The remaining sections deal in thorough fashion with methods of examination of the heart, and most of the vascular and lymphatic structures of the body. The microsections in the lymphography portion are particularly useful.

Considering the fact that the work was prepared by some 75 authors from 13 countries, the format is remarkably uniform. There is an adequate index, and the quality of the illustrations is distinctly above average.

L. H. GARLAND, M.D.

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CLINICAL NEUROLOGY—Frank A. Elliott, M.D., F.R.C.P., Chief of Neurology, The Pennsylvania Hospital; Professor of Clinical Neurology, University of Pennsylvania School of Medicine. W. B. Saunders Company, Philadelphia and London, 1964. 688 pages, \$12.50.

There exists at the present time more than two excellent textbooks of neurology designed for the student and the resident. Any new textbook is bound to be compared with these and one would like to see a new textbook an improvement of the old ones.

This textbook is one of 688 pages, which is far from adequate to allow anything approaching a comprehensive textbook of clinical neurology and this imposes on the author great demands in terms of selection. He devoted the first 131 pages chiefly to anatomic diagnosis, and this is a mixture of correlative anatomy, methods of examination, and some clinicopathological correlations. While these 131 pages are full of facts and many excellent points, the mixture on the whole is rather irregular and I doubt a student will find it interesting reading. I believe there is a great need in clinical neurology for a well-written section such as this on the diagnostic value of symptoms and signs, but the section probably contains far too much ordinary anatomy, better read in standard anatomy texts.

The rest of the textbook is of the usual format in terms of presentation and contents. It has a very useful bibliography. Treatment and management are, on the whole, inadequately dealt with, and I would refer in particular to cerebrovascular disease, myasthenia gravis or polymyositis. From the point of view of management of patients with neurological diseases and specific therapy, this textbook will not be useful.

Some aspects of diagnosis, such as muscle biopsy, carotid

bruits and ophthalmodynamometry are not discussed, although muscle biopsy is on one occasion mentioned in passing, but does not appear in the index.

The clinical diagnosis of cerebrovascular disease, a condition of such high incidence in any type of medical practice, could gain by extension even without increasing the textbook size by deleting detailed anatomic descriptions or cutting down uncommon disorders, such as Creutzfeldt-Jakob's disease, which is discussed in three quarters of a page.

It is very easy to find apparent faults in a first edition, however, this textbook does contain a large mass of information which has been carefully put together. It will have a real use for students and residents in regard to clinical diagnosis, but not much from the point of view of therapy and management. It is unlikely, however, that in its present form and style it will compete successfully with the well-established better textbooks of neurology.

DONALD MACRAE, M.D.

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HANDBOOK OF OBSTETRICS & GYNECOLOGY—Ralph C. Benson, M.D., Professor of Obstetrics and Gynecology, and Chairman of the Department, University of Oregon Medical School, Portland. Lange Medical Publications, Los Altos, 1964. 656 pages, \$5.00.

Professor Benson's Handbook of Obstetrics and Gynecology is a very complete companion volume (656 fact-filled pages) which the Obstetrical Resident or the busy practitioner can keep with him at all times. It is a bit bulky but, just as the other handbooks published by Lange, it will fit in his coat pocket. Benson's Handbook is very similar to Milton Chatton's very successful Handbook of Medical Treatment in that it is complete, practical and well-organized. The usual tables of metric equivalents, normal levels for blood chemistry, clearance tests and excretion values on the fly pages and inside covers are well chosen and convenient. There is scarcely a square inch of blank paper.

Admittedly, Dr. Benson has had to choose his material carefully and it is understandingly disappointing that specific details of treatment are sometimes missing. For example, the author is a recognized authority on the management of hyperthyroidism in pregnancy, but his outline of treatment in this instance is not as specific as the man faced with writing the orders for antithyroid medication would like. On the other hand, the true emergencies such as cardiac arrest or the management of postpartum hemorrhage are dealt with in concise and specific detail and the Handbook, near at hand, could well be lifesaving.

Approximately one-third of the book is devoted to gynecology, and here Professor Benson demonstrates his sound, conservative, yet practical approach to gynecologic problems. There are a few points of current practical interest which might deserve more attention, such as the intra-uterine device for contraception which are merely mentioned in passing; however, his organization and approach to management of menstrual disorders, gynecologic backache, and problems of the climacteric are sound and concise.

J. G. MOORE, M.D.

PROGRESS IN CLINICAL PSYCHOLOGY—Volume VI—Edited by Lawrence Edwin Abt, Ph.D., and Bernard F. Riess, Ph.D. Editorial Board: Henry P. David, Ph.D.; George S. Klein, Ph.D.; Bruno Klopfer, Ph.D.; Rollo May, Ph.D.; James G. Miller, M.D., Ph.D.; and David Wechsler, Ph.D. Grune & Stratton, New York, 1964. 252 pages, \$8.75.

This is the sixth volume in a series edited by Abt and fellow editors since 1952. There is continued emphasis by the editors and contributors upon the integral nature of clinical psychology within the science of psychology and upon evaluation of the many directions and applications of clinical psychology. Each of the several volumes has reviewed progress in the field and also has introduced recent developments or an area not previously covered. Thus, earlier volumes were concerned primarily with psychodiagnostic test instruments and with methods of individual and group psychotherapy and their evaluation. The content also has ranged from substantive areas to the contexts in which clinical psychology and clinical psychologists function.

The current volume consists of five major areas—measurement, theory, research, applications, and developments abroad. The latter is the first occasion in the series to specifically discuss clinical psychology in other countries and relatively brief observations are reported on Japan, Latin America, and the Arab Middle East. The theory section selects three areas for discussion. These relate to theory and laboratory studies of frustration and aggression, phenomenology and existential analysis, and psychoanalytic concepts in the understanding of development and growth.

The measurement chapters provide an interesting contrast between projective techniques and the highly standardized, objectively scored, and widely used Minnesota Multiphasic Personality Inventory (MMPI). This contrast provides continuing evidence of the dichotomy between use and evaluation of structured, objective psychodiagnostic tests and projective test methods. Other familiar areas of clinical psychology are reviewed in chapters on training and mental health education; and applications in industry and in aging and addiction. This section on applications represents a potpourri though the editors try valiantly to identify the underlying dimensions. Finally, there is in one of the two research chapters the first appearance of a discussion of the community mental health movement, the approach so much in recent and current legislation and ferment.

IVAN N. MENSII, Ph.D.

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TAY-SACHS' DISEASE—Edited by Bruno W. Volk, M.D., Isaac Albert Research Institute of the Jewish Chronic Disease Hospital, Brooklyn, New York. Grune & Stratton, Inc., New York and London, 1964. 158 pages, \$5.75.

This book is a review of the historical, clinical, pathological, biochemical and genetic aspects of Tay-Sachs' disease. From the first chapter, on the history of the disease, by Bruno W. Volk, through chapters on clinical aspects by Larry Schneck, on biochemistry by Abraham Saifer and on genetic features by Stanley M. Aronson, this book is beautifully done. Each aspect of Tay-Sachs' disease is described in a thorough, straightforward manner. The book makes available in a single volume the literature on Tay-Sachs' disease, including most of the pathological, biochemical, clinical, and genetic studies which have appeared during the past 80 years. Having in hand the information compiled in this book, the reader can obtain as clear a picture of Tay-Sachs' disease as it is possible to derive from the voluminous research which has been done. The authors are to be congratulated and the book recommended as the most authoritative one available on the subject of Tay-Sachs' disease.

JOHN S. O'BRIEN, M.D.

MEDICAL DEPARTMENT, UNITED STATES ARMY—Blood Program in World War II. Prepared and published under the direction of Lieutenant General Leonard D. Heaton, The Surgeon General, United States Army. Colonel John Boyd Coates, Jr., MC, USA, Editor in Chief; Elizabeth M. McFetridge, M.A., Associate Editor. Office of The Surgeon General, Department of the Army, Washington, D.C., 1964. For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402. 922 pages. (No price given.)

This is an expensively bound book on heavy paper with many photographs, most of which are little more than interesting souvenirs. The book outlines in great detail the policy decisions of the army relating to its blood program and the reasons for these decisions (including quotations from the minutes of various meetings and from military correspondence). It also details the implementation of these decisions, first in the zone of Interior, and then theater by theater.

This book would be of interest to a very limited audience. It can serve as a source book for medical historians and might be of help to persons interested in designing blood programs for disaster at the national level. The history of the development of the plasma and albumin programs will be of interest to some readers, particularly the story of the abortive attempt to use bovine albumin.

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ATLAS OF HAND SURGERY—Marc Iselin, Director, Department of Surgery—Maison De Nanterre; Consultant Surgeon at American Hospital; Member of the Academy of Surgery. Assistant Surgeons—Maison De Nanterre: Luc Gosse, Serge Boussard, and Daniel Benoist. Translated by John C. Colwill, M.D., Oakville, Ontario, Canada. McGraw-Hill Book Company (The Blakiston Division), New York, 1964. 324 pages, \$19.50.

Dr. Iselin is without question the senior hand surgeon in France specializing in this field at an early date. Inspired by Dr. Kanavel's book on hand infection and by the publications of Sterling Bunnell, he journeyed to America for further training and met personally Dr. Bunnell, Dr. Sumner Koch and Dr. Michael Mason.

His publications on hand surgery began in 1928 and have continued since, his latest contribution being the Atlas of Hand Surgery. This text was meant to complement his latest book and to describe in considerable detail, and by graphic line drawings, the actual surgical procedures that he personally has done and found workable.

The Atlas itself is equally divided between line drawings depicting the technique and explanatory descriptions on the facing page. The material covers practically all aspects of hand surgery related to trauma, plus a few additional entities such as congenital syndactyly and Dupuytren's disease.

Missing from the text is the surgery of the rheumatoid hand though tuberculous tenosynovitis and the so called stenosing tenosynovitis are included. Considerable emphasis is placed on the plastic aspects and the incisions, etc., presented in considerable detail.

Controversial procedures such as methods of tendon repair and grafting are covered basically by describing the author's methods only. In general this is an interesting work and warrants review by all those engaged in hand surgery. It is probably most valuable to the younger or less experienced individual who wishes to gain a comprehension of surgical possibilities in hand surgery for the crippled hand.

There are many minor points to take issue with but these are relatively insignificant when compared to the soundness of the entire volume. All doctors doing hand surgery should have the Atlas available for reference, and it is definitely recommended for all those in the training phase.

L. D. HOWARD, JR., M.D.

HYPNOANALYSIS—Second Edition—Lewis R. Wolberg, M.D., Dean and Medical Director, Postgraduate Center for Mental Health; Clinical Professor of Psychiatry, New York Medical College, Flower Fifth Avenue Hospital, New York City; foreword and special contribution by A. Kardiner, M.D., formerly Director of Psychoanalytic Clinic at Columbia University, and Clinical Professor of Psychiatry, Columbia University. Grune & Stratton, New York and London, 1964. 424 pages, \$7.50.

The first edition of hypnoanalysis was published in 1945 and contained a long case history of the hypnoanalytic treatment of a male schizophrenic patient. This was followed by an excellent detailed discussion of the inter-relationship of hypnosis and psychoanalysis, transference, resistance, interpretation and the recall of buried memories as well as one chapter on hypnoanalytic procedures. The first edition was primarily intended to show how the use of hypnosis could facilitate psychoanalysis, but much of the original edition was an exposition of psychoanalytic principles and techniques in the treatment of neuroses and character disorders. As such, the first edition is still valuable reading for psychiatric residents and general psychiatrists because of the author's lucid style and the unique demonstration of a dynamic unconscious that is seen in hypnosis.

The author's stated purpose of the second edition was to evaluate, the passage of after 20 years, the helpfulness of hypnosis in a psychoanalytic program by the addition of new material. The new material consists of the first three chapters of the second edition. The first chapter deals with uses and abuses of hypnoanalysis and includes an excellent discussion of the reasons why hypnosis has not been fully accepted by psychiatrists and psychoanalysts. One significant point which Wolberg makes is the often startling and sometimes uncomfortable increase in counter-transference in the hypnotist. The balance of the first chapter concerns itself with interesting and appropriate clinical material that illustrates the indications and counter-indications of hypnosis in psychoanalysis.

The second chapter is a thorough and complete summary of induction techniques and includes valuable material helpful in dealing with resistance to hypnosis in the subject.

In the third chapter the author illustrates the usefulness of hypnosis with an annotated dialogue of the hypnoanalytic session.

Hypnosis is frequently criticized by many psychiatrists and psychoanalysts because in the past it has been used purely for symptom removal. When used in this way the results are transient and the criticism is justified. However, the author does much to invalidate this criticism by showing with considerable clarity how hypnosis can be integrated into the psychoanalytic-oriented practice of psychiatry. (At no point does he suggest the use of hypnosis purely for symptom removal.) As such, it is an extremely valuable book for any practitioner of psychiatry who still has an open mind and is interested in acquiring new techniques which may benefit patients.

FRED L. FASON, M.D.

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MENTAL RETARDATION—A Review of Research—Edited by Harvey A. Stevens and Rick Heber. The University of Chicago Press, Chicago and London, 1964. 502 pages, \$12.50.

The book edited by a Superintendent of a Training School (H. A. S.) and a Professor of Education (R. H.), is a very timely review of research in the major scientific discipline dealing with the problems of the mentally retarded. It was sponsored by the American Association of Mental Deficiency Project on Technical Planning in Mental Retardation and attempts to bring together knowledge from genetics, biochemistry, epidemiology, and neuropathology, as

well as from sociological, psychological and educational studies.

Extensive bibliographies are included at the end of each 12 main chapters and the book takes in some of the aspects of an encyclopedia which would be useful for persons who are primarily or significantly involved in the problems of mental retardation, but not for the average physician who is seeking guidance in the treatment of patients in his own practice. The handbook developed by the American Medical Association and published in the January 18, 1965 edition of the *Journal of the American Medical Association* (Vol. 191, No. 3) will be found by physicians to be eminently more useful for this purpose.

Medical Libraries will undoubtedly wish to add this book to their collection of works on mental retardation, but its purchase by the average physician is not recommended.

NORMAN Q. BRILL, M.D.

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LEFT-HANDEDNESS—Manual Superiority and Cerebral Dominance—By Henry Hécaen and Julian de Ajuria-guerra. Translated by Eric Ponder. Grune & Stratton, Inc., New York, 1964. 162 pages, \$5.00.

This book presents an encyclopedic coverage of studies on all the various aspects of the significance of left handedness and cerebral dominance. Reference and statistical findings are so concentrated that it is difficult to follow the author's train of thought. Because it is a translation, part of its unreadability may be due to problems of semantics. It might be of value for the student who wishes detailed references in the field, but would hold little for the general medical reader.

BARBARA JESSEN, M.D.

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PEDIATRIC PROCEDURES—Walter T. Hughes, Jr., M.D., Assistant Professor of Pediatrics, University of Louisville School of Medicine, Louisville, Kentucky, W. B. Saunders Company, Philadelphia and London, 1964. 208 pages, \$7.50.

In this slim volume, Dr. Hughes has collected almost every conceivable diagnostic and therapeutic procedure which might be performed in pediatric practice. The descriptions are detailed and lucid, the illustrations are plentiful and well done. The author starts with methods of restraining a child, follows with a wide spectrum of procedures starting with such minor things as injections, venipunctures and cleansing the ears of cerumen, and proceeds to more complex endeavors such as subdural and cisternal taps, closed cardiac massage and exchange transfusions.

There are not many omissions, but among them is the lack of emphasis of techniques for obtaining proper samples of blood, urine and other body fluids for culture. The method of capillary blood collection and the handling of specimens for pH and pCO₂ determination by the Astrup method is also not included.

A major defect of the book is the author's failure to provide guidance to the reader in choosing, out of a variety of alternate methods of a given procedure, which might be the best—e.g., which vein is best used for collecting blood, which of the several types of needles for bone marrow biopsy is most effective, or which method of tuberculin testing should be used. Hazards and complications of procedures are listed but contraindications are not sufficiently highlighted.

Despite these omissions, the physician in training will find many very useful pointers to procedures and the physician in practice could consult this book for an accurate description and good illustration of some of the newer procedures with which he may not be fully familiar.

MOSES GROSSMAN, M.D.

THE LYMPHATICS OF THE FEMALE GENITAL ORGANS—Dr. Günther Reiffenstühl, First Head Physician, University Clinic, Obstetrics and Gynecology, Graz, Austria. Translated by Leslie D. Ekvall, Jr., M.D., Diplomate, American Board of Obstetrics and Gynecology, Anchorage Medical and Surgical Clinic, Anchorage, Alaska. J. B. Lippincott Company, Philadelphia and Montreal, 1964. 165 pages, \$10.00.

The problem of lymph nodes in genital carcinoma has become more important during recent years. The successful surgical removal of lymph nodes requires, above all, a thorough knowledge of the exact anatomic situation. Most descriptions of the lymphatic system in the female pelvis in textbooks of anatomy are based on studies published at the turn of the century. This very complete monograph reviews these early studies and more recent surgical studies. Of major importance, however, is the report of the findings of an anatomical study of the lymphatic channels, areas of drainage, number and location of the lymph nodes in 28 newborn female cadavers. The results of the study, which was carried out over six years, were published in German in 1957 and are now made available in an English translation.

The lymphatic channels leading from the vulva, vagina, uterus and adnexa and the lymph nodes along these channels are carefully described and clearly demonstrated in 70 illustrations. The clinical importance of these node groups as sites of metastases and recurrence of cervical carcinoma is discussed. The author points out that even the radical pelvic lymphadenectomy now proposed for the treatment of cervical carcinoma is incomplete since several regional node groups, especially those in the area of the inferior gluteal artery, are not removed.

Since the major interest in the radiologic demonstration of the pelvic lymph channels and node groups came after the original publication of this book no mention of the techniques or application of lymphangiography is made. However, the book will undoubtedly remain a standard reference for those interested in the interpretation of lymphangiograms as well as for those interested in the surgical treatment of gynecological cancer.

EMMET J. LAMB, M.D.

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MICRO-ANALYSIS IN MEDICAL BIOCHEMISTRY (Originally written by Earl J. King, M.A., M.D., D.S.C., F.R.I.C.—Fourth Edition—I.D.P. Wootton, Ph.D. (Lond.), M.A., M.B., B.Chir. (Camb.), F.R.I.C., M.C.Path., Professor of Chemical Pathology in the University of London at the Postgraduate Medical School. Grune & Stratton, Inc., New York, 1964. 254 pages, \$5.50.

As indicated in the Preface, this book is intended to represent the routine laboratory practice of chemical pathology at the Postgraduate Medical School in the University of London. As such it is a useful reference for laboratories concerned with biochemical analyses required in clinical medicine. The use of the term "micro" in the title is apparently meant to indicate that the methods selected require minimal amounts of sample. It is not a collection of methods which are "micro" in the sense that other than routine chemical competence and equipment are required to carry them out. Directions are specific and clear and the methods selected are those generally accepted as reliable for the purpose intended.

The book includes some general and useful information on laboratory accuracy and on the principles of colorimetry, spectrophotometry and spectroscopy as well as on pH and buffers and on the preparation of volumetric solutions. A considerable amount of rewriting of the former third edition has been necessitated by the advances and consequent changes in emphasis in the field of clinical chemistry. This is evidenced by the inclusion in the current edition of chapters on automated analyses and expanded treatment of as-

says for enzyme activities in the serum. There is also a short section on the use of chromatographic methods for identification in the urine of reducing sugars, amino acids, 5-hydroxyindoleacetic acid (5 HIAA) and vanillylmandelic acid (VMA). 5 HIAA is a metabolite of serotonin occurring in the urine of patients with carcinoid syndrome. VMA is the major metabolite of adrenalin and nonadrenalin found in the urine. Tests for VMA are therefore useful in the laboratory diagnosis of active pheochromocytoma. These latter tests are cited as evidence that the book contains not only methods for all of the frequently used tests but also, in addition, it includes tests for several others which while not so frequently called for are nonetheless readily done in an average laboratory when required.

This new edition of "Micro-analysis in Medical Biochemistry" is recommended as a reference work in the clinical laboratory.

HAROLD A. HARPER, Ph.D.

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BLOOD COAGULATION, HEMORRHAGE AND THROMBOSIS—Methods of Study—Leandro M. Tocantins, M.D., and Louis A. Kazal, Ph.D. Grune & Stratton, Inc., New York and London, 1964. 532 pages, \$17.50.

This volume is a greatly expanded and revised version of "The Coagulation of Blood, Methods of Study" issued in 1955, and represents a "second generation" text rather than a second edition. Many distinguished contributors discuss a particular area of blood coagulation, hemostasis, fibrinolysis or thrombosis with emphasis on methodology rather than theory or clinical diagnosis. In fact there is heavy emphasis on research methods, although the usual clinically applied tests are covered. To the editors' credit they have often included more than one method for the evaluation of a particular clotting factor. This is an important consideration in a controversial and rapidly expanding field.

There is, however, uneven coverage. Too little emphasis has been given to hemostatic events, especially the bleeding time and platelet aggregation, areas of intense interest in recent years. Particularly, there is no discussion of adenosine diphosphate and its possible role in hemostasis and thrombosis. Only one method—a partially discredited one at that—is given for the detection of platelet antibodies and there seems to be too much emphasis and repetition in the area of fibrinolysis. Finally, the two fine articles on detection of clinical thromboembolic disease seem out of place in this volume.

However, these criticisms are minor. While this volume is not intended for the practicing physician, it is a must for investigators, for anyone charged with physician or technician training in this area and for those working in clinical laboratories.

D. P. COONEY, M.D.

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PHYSIOLOGY OF THE EYE—Clinical Application—4th Edition—Francis Heed Adler, M.A., M.D., F.A.C.S., William F. Norris and George E. de Schweinitz, Emeritus Professor of Ophthalmology, University of Pennsylvania School of Medicine. The C. V. Mosby Company, 3207 Washington Boulevard, St. Louis, Missouri, 63103, 1965. 889 pages, 437 illustrations, 2 in color, \$18.75.

The author is a master teacher who has assimilated in one volume the pertinent updated things one needs to know about this subject.

Although the book was written primarily for students, the well-seasoned ophthalmologist or visual physiologist will be able to update his blind spots in retinal physiology, fluid dynamics, ocular motility, the vascular system and corneal physiology. This is a very readable compendium of knowledge in this subject that the practicing ophthalmologist will find most helpful in relating clinical management problems to basic physiologic principles.

ARTHUR JAMPOLSKY, M.D.

ZINSSER MICROBIOLOGY—13th Edition—David T. Smith, M.D., Professor of Microbiology and Associate Professor of Medicine; Norman F. Conant, Ph.D., Chairman and Professor, Department of Microbiology; and John R. Overman, M.D., Professor of Microbiology and Assistant Professor of Medicine, Duke University School of Medicine; and others, Appleton-Century-Crofts, (Division of Meredith Publishing Company), New York, 1964. 1214 pages, \$17.75.

This venerable text is now in its 6th decade. The entire field of Microbiology has changed radically since the book first appeared in 1910 and this latest edition reflects rather well the areas which have been increasingly emphasized. Almost 200 pages are now dedicated to Immunology and a similar portion to Virology. Medical Mycology takes up nearly 100 pages and is superbly presented by Dr. Norman Conant, an outstanding mycologist in the United States. A well illustrated section on medical parasitology occupies more than 150 pages.

Perhaps one of the main difficulties of such a book is the author's desire to be profound and detailed in all the fundamental aspects of the field while remaining sufficiently concise to be a practical source of study for student or practitioner. On the whole they have succeeded well. The specific references listed at the end of each section provide a welcome source of available additional information. This should be a useful book for the physician who requires specific information in microbiology.

ERNEST JAWETZ, M.D.

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ATLAS OF PULMONARY RESECTIONS—Buford H. Burch, M.A., M.D., F.A.C.S., Chief of Thoracic Surgery, Chest Center, Patton State Hospital, Patton, California; Assistant Clinical Professor, Division of Surgery, Loma Linda University, Loma Linda, California; and Arthur C. Miller, M.S., M.D., F.A.C.S., Thoracic Surgeon, Veterans Administration Hospital, Roseburg, Oregon; Assistant Professor, Division of Surgery, Loma Linda University, Loma Linda, Calif. Charles C Thomas, Publisher, Springfield, Ill., 1964. 162 pages, \$12.50.

This Atlas represents the authors' methods of carrying out the various pulmonary resections. It is divided into two portions: the first being one covering Basic Technical Considerations and the second, Surgical Procedures. Under the latter there are ten separate segmental resections pictured and described, all the lobectomies and pneumonectomies are likewise illustrated. A method of doing pulmonary biopsy and of excision of a giant emphysematous bleb is likewise carefully detailed.

The illustrations are technically excellent and absolutely clear. The surgical recommendations stress gentleness and the use of triple ligation of all vessels and the use of proximal main artery control in dangerous situations.

This reviewer feels that the segmental anatomy of the lung is inadequately given. Since ten of the pulmonary resections are segmental resections, one expects to find a detailed presentation of segmental anatomy including the relationship of the segmental bronchus and artery to each other and the peripheral location of the intersegmental veins.

As a matter of fact, in those segmental resections which are depicted and where there are two different intersegmental surfaces one notices that the intersegmental vein is pictured in the crevice between the two rather than correctly with an intersegmental vein for each intersegmental surface. This error will be found in the depiction of right posterior segmental resection and right anterior segmental resection. Likewise, in the performance of pulmonary segmental resection the authors describe two methods of separating the segments, the first being by simple traction and the second by placing clamps along a plane of separation apparently selected by general reckoning. Since the intersegmental veins

are accurate guides to the correct plan of separation of segments, one feels that this method should also be documented.

The methods of pulmonary biopsy is incompletely handled. The authors do not approve of the wedge resection type of technique and carefully describe the method of simple excision and also of subsegmental resection. Since wedge resection is commonly used by many other competent thoracic surgeons, its inclusion in an atlas like this is desirable even if the authors prefer other methods. Likewise, the best method of doing a pulmonary biopsy for bilateral diffuse disease rather than for a peripheral nodule should be detailed since this is a commonly performed diagnostic biopsy procedure. Once again the authors feel strongly that the supine and prone positions for thoracotomy should never be used and so these are not depicted. Again, for teaching purposes at least, these should be carefully described as most surgeons feel that there are definite indications for the use of each position. Finally, it is frequently necessary to carry out pneumonectomies in a retrograde or unusual fashion and inclusion of the technique in such cases would make this atlas more complete.

BEATTY H. RAMSAY, M.D.

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HUMAN LARYNX—Mervin C. Myerson, M.D., Attending Staff of Cedars of Lebanon and Hollywood Presbyterian Hospitals, Los Angeles, St. Johns, Santa Monica, and Mount Sinai Hospital, Beverly Hills, Calif. Formerly, Clinical Professor of Otolaryngology, Loma Linda University School of Medicine. Director of Otolaryngology, Brooklyn Cancer Institute. Charles C Thomas, Publisher, Springfield, Ill., 1964. 398 pages, \$14.50.

With the publication of "The Human Larynx," Dr. Myerson, an eminent clinical laryngologist, has made available the first new laryngology text in over two decades. Clinical laryngology is one of the areas in current medical practice in which skillful employment of the art of medicine remains important. The author's orientation, knowledge, and experience have enabled him to cover this phase of laryngology particularly well.

Dr. Myerson begins with a thorough, but concise exposition of the embryology, anatomy, and physiology of the larynx, and devotes a separate chapter to the consideration of the laryngeal lymphatics. He progresses from this point to consideration of non-neoplastic diseases of the larynx, and ends the book with several chapters on cancer of the larynx, and one on the subject of post-laryngectomy rehabilitation. This text book is well organized and nicely illustrated. Each chapter is followed by an unusually complete and current bibliography.

"The Human Larynx" is highly recommended as a basic text and reference book in laryngology for the medical student and for physicians in training and in practice, not only in laryngology, but also in other fields of medicine.

CHARLES P. LEBOW, M.D.

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A SHORT HISTORY OF MIDWIFERY—Irving S. Cutter and Henry R. Viets. W. B. Saunders Company, Philadelphia, 1964. 260 pages, \$8.50.

The major portion of this compact volume is a reprint of the historical introduction to the now largely outdated three-volume system of obstetrics and gynecology published in 1933 under the editorship of the late Arthur H. Curtis of Northwestern University Medical School. Cutter, who died in 1945, then was the medical dean at Northwestern and had achieved considerable stature as a medical historian. To his original effort of about 175 pages Viets has added a section of supplementary notes on more than seventy of the persons discussed in the original text. Another short new section deals with additional contributions to the history of midwifery, ranging from Soranus of Ephesus (A.D. 98-138) to Joseph Bolivar De Lee of Chicago (1869-1942), but the

name of J. Whitridge Williams of Baltimore and Johns Hopkins is unaccountably missing. Two short appendices include a list of books published on the history of midwifery since 1933, and a selection of catalogs of books on midwifery. There are separate indexes of illustrations, persons and subjects, and a brief biography of Cutter serves as an introduction.

Cutter's historical chapter in the Curtis set will be remembered fondly by many obstetricians and gynecologists of pre-World War II vintage who worked their way through at least the first volume of this massive editorial effort. Those who no longer have access to the original would do well to invest in the new and expanded reprint, if only to learn more than most of them know about the dynamic Irving Cutter, whose career took him from high school principal in Beatrice, Nebraska to widely read health columnist for the *Chicago Tribune*. As Viets has pointed out, Cutter's contribution retains its freshness and is every bit as readable today as it was over thirty years ago.

The current crop of residents and younger practitioners of the specialty, who may have found all too little time for history in their rush to absorb the vast new flood of basic and clinical science, should steal a few hours to acquaint themselves with the fascinating personalities who provided the background for our discipline. This timely book will provide not only much immediate intellectual refreshment but will justify its initial cost by serving as a reference tool for the future. Every director of a residency program in obstetrics and gynecology should take the trouble to make Viets' revision of Cutter's classic available to all his trainees.

C. E. McLENNAN, M.D.

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THE VISUAL FIELDS—A Textbook and Atlas of Clinical Perimetry—Second Edition—David O. Harrington, A.B., M.D., F.A.C.S., Clinical Professor of Ophthalmology, University of California School of Medicine, San Francisco, California; Consultant in Ophthalmology, Veterans Administration Hospital, Fort Miles, San Francisco, California. The C. V. Mosby Company, St. Louis, 1964. \$16.00.

This finely bound and well printed textbook is divided into two sections: 1. Examination of the visual field, 2. Interpretation of defects in visual fields. It is liberally illustrated with nine color plates and 318 illustrations, some of them new to this second edition.

Dr. Harrington maintains the high standard set in his first edition updating the field of clinical perimetry not only by gleaned the literature but also adding some of his own rather extensive findings. The fact that every case presented had been examined by the author lends a feeling of authority and conviction frequently lost in other texts written from secondhand knowledge.

The chapters on correlation of visual field interpretation with anatomy are particularly valuable to the neuroanatomical clinical neurologist and neurosurgeon.

I do not hesitate to recommend this latest textbook by Dr. Harrington as a must for every practicing ophthalmologist.

ROBERT M. SINSKEY, M.D.

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TERATOLOGY—Principles and Techniques—Edited by James G. Wilson and Josef Warkany. The University of Chicago Press, Chicago, Ill., 1965. 279 pages, \$5.50.

This interesting monograph consists of the lectures and "demonstrations" given at the First Workshop in Teratology, University of Florida, February 1964. There are ten chapters, each followed by what the editor describes as a "demonstration," often a description of the techniques used in producing certain malformations.

The first chapter is entitled "Development of experimental mammalian teratology" by Josef Warkany, Professor of Research Pediatrics, Cincinnati. He notes the impetus given

to the study of biologic malformations by radiologic developments following World War II. His demonstration illustrates the histologic appearance of malformations produced by various agents.

The second chapter is on "Some genetic aspects of teratology" by F. Clarke Fraser, Professor of Human Genetics, McGill. His "demonstration" consists of a survey of spontaneously occurring malformations in mice.

Succeeding chapters deal with "Interplay of intrinsic and extrinsic factors" (Kalter, Research Associate, Children's Hospital, Cincinnati), "General mechanisms of teratogenesis" (Runner, Professor of Biology, University of Colorado) and so forth. There is an interesting chapter on "Mechanisms of action of certain growth-inhibiting drugs" by Karnofsky, and a "demonstration" of "Methods of administering agents and detecting malformations in experimental animals" by Wilson. The latter is first listed editor of the book and is Professor of Anatomy at the University of Florida.

The work is well illustrated and indexed and should be of interest to all physicians who have at their disposal such powerful mutagenic agents as caffeine, thalidomide and ionizing radiation.

* * *

PRACTICAL PAEDIATRIC PROBLEMS—James H. Hutchison, O.B.E., M.D. (Glas.), F.R.C.P. (Lond.), F.R.C.P. (Ed.), F.R.C.P. (Glas.), Professor of Child Health, University of Glasgow; Visiting Physician, Royal Hospital for Sick Children, Glasgow; Consultant Paediatrician, The Queen Mother's Hospital, Glasgow. Year Book Medical Publishers, Inc., 35 East Wacker Drive, Chicago, 1965. 514 pages, \$10.00.

It is admirable that any pediatrician in the year 1964 should have sufficient breadth of knowledge to write a textbook of pediatrics without the aid of coauthors. Viewed from that standpoint, one can only have admiration for Dr. Hutchison for having attempted this feat.

On the other hand, one could predict that it is almost impossible to keep up with the rapid progress of medicine and biology in the wide variety of areas embraced by pediatrics. Such a prediction is borne out by the text under review. This volume, consisting of some 500 pages, attempts to cover all of pediatrics in textbook fashion. It is obvious that the author is quite up-to-date in some areas, but two to three years behind in others. The book suffers, to some extent, from the very brevity of the discussion.

Among the various aspects of this book which the reviewer has found less than satisfactory are: The section on infant feeding gives proprietary names for milk feedings which are applicable only in England but are not used in the United States. There is too much stress on limiting oxygen for newborns to 40 per cent; the author mentions that this limit should be exceeded in severe cyanosis but the discussion is not physiologically oriented. In the section on phenylketonuria, there is no mention of the Guthrie blood test. There is nothing about the newer knowledge on immunology of the newborn. Subdural effusion is not mentioned as a complication of *H. influenzae meningitis*. The reviewer would not agree with the advice that pneumococcal meningitis should receive intrathecal penicillin daily for 5 to 7 days.

In summary, this book appears to be too brief as a regular textbook, significantly out of date in a number of areas, and cannot compare favorably with any one of several good current U.S. pediatric textbooks. Its usefulness would seem to be limited as a reference book for physicians who are particularly interested in what an accomplished and experienced pediatrician like Dr. Hutchison feels about particular clinical problems.

MOSES GROSSMAN, M.D.

RESPIRATORY FUNCTION IN DISEASE—An Introduction to the Integrated Study of the Lung—David V. Bates, M.D. (Cantab.), M.R.C.P. (London), Associate Professor of Medicine, McGill University; Director, Respiratory Division, Joint Cardiorespiratory Service, Royal Victoria Hospital and Montreal Children's Hospital; and Ronald V. Christie, M.D. (Edinburgh), M.Sc. (McGill), D.Sc. (London), Sc.D. (Dublin), F.A.C.P., F.R.C.P. (London), F.R.C.P.(C), Professor and Chairman of the Department of Medicine, McGill University; Physician-in-Chief, Royal Victoria Hospital. W. B. Saunders Company, Philadelphia and London, 1964. 566 pages, \$15.50.

The simple title of this book is misleading. Actually, this is a 475 page text complete with a carefully worked subject index and reference index. It is inclusive of almost everything pertaining to pulmonary function in both the normal and in disease. It includes basic descriptions of methods of obtaining pulmonary function measurements. It lucidly describes what information can be obtained and its clinical value. That portion of the book that refers to different diseases is superb. The different entities are succinctly described from the pathological, physiological, and radiological points of view. Illustrative case reports are used and these are well illustrated with radiographs and graphs as most appropriate.

This reviewer feels that this book should be in every medical library and also in the personal possession of every physician who deals in any significant amount of pulmonary disease.

BEATTY H. RAMSAY, M.D.

* * *

BURNS—A Symposium—Compiled and edited by Leon Goldman, M.D., Associate Dean, School of Medicine and Professor and Chairman, Department of Surgery, and Richard E. Gardner, M.D., Assistant Professor of Surgery, University of California School of Medicine, San Francisco, Calif. Charles C Thomas, Springfield, Ill., 1965. 191 pages, \$7.75.

This book is a compilation of articles and discussions from a symposium on "Burns" presented by the Department of Surgery of the University of California School of Medicine in San Francisco. An outstanding panel of authorities in both basic science as well as clinical practice have lucidly presented cogent, current concepts in the care of the burned patient, some widely accepted and others debatable and controversial.

In four sections the text covers the systemic effects of burns, local effects and local therapy, specific problems related to burns and their complications, and rehabilitation, healing, and skin grafting. The authors present a sound

program for treating burn shock, fluid and electrolyte disturbances, and the burn wound. Antibiotic therapy, immersion treatment, and early debridement and grafting are discussed by the panel members who often have differing views on such controversial subjects. The research approaches to burn therapy and tissue repair are reviewed in some detail.

This symposium should be of great interest to the physician who has a basic knowledge of burn management. It has been ten years since a major symposium on the subject of burns has been carried out. In view of the many advances in the problems of burns which have developed in the past decade, it is timely that authorities in this field have gathered to bring the practicing physician up-to-date in burn care. The proceedings are loosely edited which preserves the informal aspects of the symposium.

ERIC W. FONKALSrud, M.D.

* * *

BODY FLUIDS AND THE ACID-BASE BALANCE—A Learning Program for Students of the Biological and Medical Sciences—Halvor N. Christensen, Ph.D., Professor of Biological Chemistry and Chairman of the Department, The University of Michigan. W. B. Saunders Company, Philadelphia and London, 1964. 506 pages, \$6.50 (Paperbound).

Students of medicine, both graduate and post-graduate have long found the understanding of acid-base physiology a formidable task. In recent years the semantics and theory of modern chemistry has been applied to clinic problems. This is a great advantage to the younger students but makes recent texts and articles unintelligible to those whose basic fund of information on the topic was obtained in an earlier era.

Dr. Christensen has written a text with a programmed format to supplement the formal texts on acid-base physiology. The advantage of this format is that it demands careful and complete organization of the concepts being taught by both the author and student. Using the knowledge obtained by conventional methods the student by following the text will find that the various facts fall nicely into place.

There are five major sections covering the following concepts: pH and dissociation of weak acids; sodium, chloride and water metabolism; potassium and the intracellular compartment; calcium and phosphorus metabolism; and gas transport. The book is recommended to student and practitioner alike.

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KEY TO ABBREVIATIONS USED

(CMA)—California Medical Association; (CR)—Case Report; (CS)—Cancer Studies; (Ed.)—Editorial; (I)—Information; (LE)—Letter to Editor; (Misc.)—Miscellaneous; (Or.)—Original Article; (PE)—Page End; (RSB)—Report of Scientific Board.

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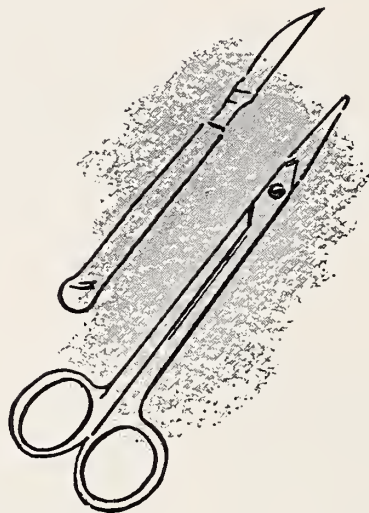
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15th ANNUAL regional postgraduate institute

HARVEY'S RESORT
HOTEL
Lake Tahoe
June 24-26, 1965

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THURSDAY, JUNE 24

12:30—Registration

Afternoon Session

- 1:15—Welcome: Donald P. Hause, M.D.
- 1:30—What and Why of Adolescent Medicine—Felix Heald, M.D.
- 2:15—Normal Psychological Development — Lewis Judd, M.D.
- 2:45—Normal Physical and Physiological Development—Leonard Linde, M.D.
- 3:30—PANEL DISCUSSION—Sexual Problems of Adolescence—Charles Cutler, M.D., Chairman, Erwin Eichhorn, M.D., Felix Heald, M.D., Lewis Judd, M.D., John Knowles, M.D., Philip Reilly, M.D.

FRIDAY, JUNE 25

Morning Session

- 9:00—The Adolescent and His Knees—Martin Blazina, M.D.
- 9:30—Management of Acne—Stanley Bierman, M.D.
- 10:30—CONCURRENT PANEL DISCUSSIONS (you may go to one of your choice):
 - A. Orthopedics in Adolescence—Eugene Smoley, M.D., Chairman, Martin Blazina, M.D., James Farley, M.D.
 - B. Office Management of Skin Problems in Adolescence—Martin Asch, M.D., Chairman, Stanley Bierman, M.D., James Dowrie, M.D., Richard Reinertson, M.D.
- 12:15—Luncheon (Wives are Welcome): The Treatment of the Minor and the Law—Robert D. Huber, Sherman C. Wilke

Afternoon Session

- 2:00—Obesity—Felix Heald, M.D.
- 2:30—Menstrual Problems—J. G. Moore, M.D.
- 3:30—CONCURRENT PANEL DISCUSSIONS (you may go to one of your choice):
 - A. Endocrine Problems—Norman Eade, M.D., Chairman, Felix Heald, M.D., Leonard Linde, M.D., B. J. Siebenthal, M.D., Suzanne Snively, M.D.
 - B. Gynecological Problems—John Miller, M.D., Chairman, Abe Berman, M.D., Erwin Eichhorn, M.D., J. G. Moore, M.D.
 - C. Emotional Problems—Edward Rudin, M.D., Chairman, Arthur Hansen, M.D., Lewis Judd, M.D., John Knowles, M.D.

SATURDAY, JUNE 26

Morning Session

- 9:00—Tumors in Adolescence—Felix Heald, M.D.
- 9:30—Role of the Non-Psychiatric Physician in Recognition and Treatment of Emotionally Disturbed Adolescents—Lewis Judd, M.D.
- 10:30—CONCURRENT PANEL DISCUSSIONS (you may go to one of your choice):
 - A. Malignancies—Richard Shaw, M.D., Chairman, J. G. Moore, M.D., Richard Ripple, M.D., Charles Smart, M.D.
 - B. Cardiovascular Problems—Glen Cayler, M.D., Chairman, Leonard Linde, M.D., Kathleen Mannion, M.D., Donald Weaver, M.D.

plan to participate

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Tar Gard Exhibit, 94th Annual Meeting, California Medical Association
San Francisco, March 28-31, 1965

Report on Tar Gard Exhibit, California Medical Association, 94th Annual Meeting

What does a racing car have to do with Tar Gard?

This was the first question asked by most of the attending physicians.

They both benefit from the principle of the Venturi tube: "A convergent-divergent duct in which the pressure energy of an air stream is converted into kinetic energy by the acceleration through the narrow part of the wasp-waisted passage."—common applications: the automobile carburetor, Ehrlenmeyer suction jar, the bedside respirator used in critical respiratory management, and Tar Gard.

In Tar Gard, the accelerated (approximately 200 m.p.h.) tar-filled smoke is stopped abruptly by an impingement barrier. The amount of tar captured by Tar Gard was dramatically demonstrated at the meeting by means of a smoking machine set to simulate an average smoking pattern.

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C-4



Program Could Damage Medical Care

(Continued from Page 32)

care and clinical investigation of patients with heart disease, cancer and stroke; (2) Research institutes within existing hospitals and medical schools, to investigate both disease-related and noncategorical problems; (3) The establishment of 550 diagnostic and treatment stations for the three diseases; (4) Increasing manpower in both clinical and research medicine by expanding current programs supported by the federal government and creating new ones.

Legislation generated by the report is already in Congress and hearings have been held by a Senate committee.

"The commission is, in effect, taking the position that it is impossible to achieve optimum control of heart disease, cancer and stroke without a broad and sweeping revision of our present system," the AMA points out. It is this system, it adds, that "although always subject to improvement, has produced the best medical education in the world, the most sophisticated diagnostic and therapeutic advances, and the most advanced understanding and treatment of disease processes."

Stating that the existing medical system offers every reasonable expectation for further advances, the AMA challenges the commission and its congressional supporters to show that the proposed changes will better and not damage the system.

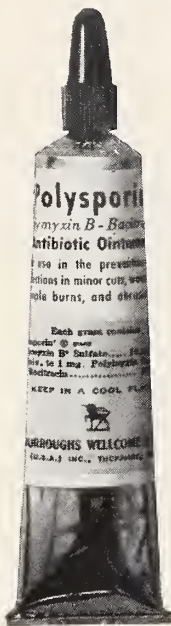
The federal government already is responsible for serious fragmentation of U. S. health care services by "the development of multiple non-coordinated health care programs administered by multiple federal agencies . . ."

The report of the commission, setting forth a new health service program, can only compound the problem, in the eyes of the AMA. The commission's recommended program, it says, totally disregards traditional relationships and responsibilities of state and local health departments, voluntary agencies and communities in favor of a "centrally planned" approach to medical care.

In questioning the commission's premise that an outpouring of federal funds for "research" will lead to "conquest" of disease, the AMA observes that money does not buy knowledge. Crash programs requiring huge expenditures—such as the Manhattan Project—are indicated only when basic knowledge and theory are well advanced.

While money may fill laboratories with scientists, the medical organization says, it cannot significantly increase the always small number of creative scientists who advance basic knowledge through their individual insights. This relative scarcity of creative scientists "makes the program advanced by the commission a false and hollow expectation."

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Adverse Drug Reactions Symposium

(Continued from Page 26)

New York City, "Technique and Wise Use of Drugs"; and Harry C. Shirkey, M.D., Birmingham, Ala., "The Innocent Child."

The session will conclude with a panel discussion on "Meeting the Problem," moderated by Dr. Win-trobe. All speakers on the program will participate, along with Joseph Sadusk, M.D., medical director of the Food and Drug Administration, and Dale G. Friend, M.D., Boston.

Powder Hastens Healing

Wounds heal faster and stronger when dusted with a powder made from the tracheal cartilage of a calf, according to an article in the May 3 *Journal of the American Medical Association*.

The article reports the first controlled experiment on human wounds, which agrees with earlier findings with laboratory animals. The effectiveness of this material in accelerating human wound healing is considered established.

The report is by John F. Prudden, M.D., Med. Sc.D., and John Allen, M.D., of the Department of Surgery, Columbia University College of Physicians and Surgeons, New York and the Presbyterian Hospital of the City of New York.

Drs. Prudden and Allen had earlier success in all but one instance when they applied the powder to

100 surgical incisions and 60 chronically nonhealing open wounds. The nonhealing wounds ranged in age from two months to seven years at the time they began to heal under the powder treatment.

These results were considered convincing demonstrations, but were not a controlled experiment. The JAMA article reports results of a study on 15 human volunteers on which small paired skin incisions were made in precisely corresponding anatomical sites. In each case, one wound was treated with the powder, while the other served as the control.

After seven to 14-day intervals, the tensile strengths of the wounds were tested. In 12 of the 15 wound pairs, the powder-treated wound was stronger. The overall strength increase was 42 per cent, which was considered significant. Three volunteers showed no differences in wound strength because they had been treated with inactive powder.

"This data has demonstrated that the acceleration of wound healing . . . is possible in human beings," the report said. "It appears reasonable to conclude that cartilage preparations will accelerate the healing of clinical wounds over a period ranging from the 6th to the 14th postoperative day."

Experiments have not been made with wounds less than six days old.

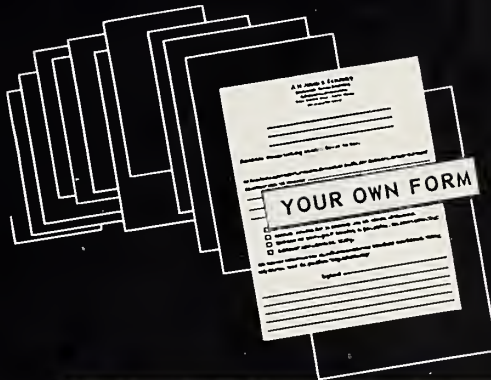
The powder used was a fine-grind acid-pepsin digested calf tracheal cartilage. Cartilage from sharks has also been effective in wound treatment of laboratory animals, the report said.

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pHisoHex is more than a superior cleanser. It contains 3 per cent hexachlorophene, an optimal amount. This powerful antibacterial agent is deposited on the skin where, as an invisible, tenacious film, it degerms between washings. Among 67 acne patients who used pHisoHex, "...results were eminently satisfactory."² When pHisoHex was used as the wash in another series of 42 acne patients, "no patient failed to improve."³

Why not recommend three or four pHisoHex washings daily and exclusively to all your acne patients? pHisoHex provides superior cleansing action and is nonalkaline, hypoallergenic and "kind" to skin. And for "...a very effective topical treatment for acne vulgaris"⁴ prescribe keratolytic pHisoAc® Cream along with pHisoHex. pHisoAc Cream contains colloidal sulfur 6 per cent, resorcinol 1.5 per

cent and hexachlorophene 0.3 per cent. It dries, peels and masks lesions. Of 100 patients treated with pHisoHex and pHisoAc (and a low-fat diet), 79 showed good-to-excellent improvement.⁴

pHisoHex is available in unbreakable plastic squeeze bottles of 5 oz. and 1 pint, in plastic bottles of 1 gallon. pHisoAc is supplied in tubes of 1½ oz. For complete acne therapy, prescribe or recommend the special *Combination Package* containing both pHisoHex and pHisoAc Cream.

References: 1. Handelman, Cathryn C.: Early management of acne, *Pediat. Clin. North America* 8:265, Feb., 1961. 2. McLean, I. E. D.; Graham, K. T., and East, M. O.: The treatment of acne; a trial of "pHisoHex," *Practitioner* 189: 82, July, 1962. 3. Hodges, F. T.: Therapeutic applications of an antiseptic detergent, *GP* 14:86, Nov., 1956. 4. Wexler, Louis: Treatment of acne vulgaris, *Clin. Med.* 70:404, Feb., 1963.

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BOOKS RECEIVED

Books received by CALIFORNIA MEDICINE are acknowledged in this column. Selections will be made for more extensive review in the interest of readers as space permits.

ADVANCE OF THE FUNGI—E. C. Large, Dover Publications, Inc., New York, N.Y. 488 pages, \$2.25, (Paperback) (This new Dover edition, first published in 1962, is an unabridged and corrected republication of the work first published by Jonathan Cape Limited in 1940.)

ANIMALS PARASITIC IN MAN—Revised Edition—Geoffrey Lapege, Dover Publications, Inc., New York, N.Y., 1963. 320 pages, \$1.85. (Paperback) (This new Dover edition, first published in 1963, is a revised version of the work first published by Penguin Books in 1957 as a volume in the Pelican Medical Series.)

BACTERIAL AND MYCOTIC INFECTIONS OF MAN—Fourth Edition—Edited by René J. Dubos, Ph.D., and James G. Hirsch, M.D., Professors, The Rockefeller Institute. J. B. Lippincott Company, Philadelphia and Montreal, 1965. 1025 pages, \$14.50.

CATARACT OPERATION BY ENZYMATIC ZONULO- LYSIS—Doz. Dr. Hans Hofmann, University Eye Clinic, Graz, Austria. Translated by Dorothy Shukri, with a foreword by Professor Karl Hruby. First American Edition translation edited by R. M. Fasanella, M.D., Grune & Stratton, Inc., New York and London, 1965. 118 pages, \$6.50. (Paperback.)

CIBA FOUNDATION SYMPOSIUM—Cellular Biology of Myxovirus Infections—Edited by G. E. W. Wolstenholme, O.B.E., M.A., M.B., F.R.C.P., and Julie Knight, B.A. Little, Brown and Company, Boston, Mass., 1964. 368 pages, \$12.00.

CLINICAL TESTING OF NEW DRUGS—Edited by Arthur D. Herrick and McKeen Cattell. Revere Publishing Company, Inc., New York, N.Y., 1965. 362 pages, \$11.75.

COMMON LIVER FLUKE—Fasciola hepatica L.—E. M. Pantelouris, Department of Zoology, The Queen's University of Belfast. A Pergamon Press Book, New York; The Macmillan Company, 1965. 259 pages, \$12.00.

ELECTROCARDIOGRAPHY—Second Edition—Richard W. D. Turner, O.B.E., M.A., M.D., F.R.C.P., F.R.C.P.E., Senior Lecturer Department of Medicine, University of Edinburgh; Physician and Physician in Charge of the Cardiac Department, Western General Hospital, Edinburgh. Foreword by William A. R. Thomson, M.D., Editor of the Practitioner. The Williams and Wilkins Company, Baltimore, Md., 1964. 155 pages, \$4.75.

FUNCTIONAL HUMAN ANATOMY—Chairman, Division of Life Sciences; Professor of Zoology, San Diego State College, San Diego, Calif. Lea & Febiger, Philadelphia, Pa., 1965. 662 pages, \$9.50.

HYPERTENSIVE RETINAL DISEASE—Samuel A. Shelburne, M.D., F.A.C.P., Clinical Professor of Medi-

cine, University of Texas Southwestern Medical School; Chief, Hypertension Clinic, Parkland Memorial Hospital, Dallas, Texas. Grune & Stratton, Inc., New York and London, 1965. 48 pages, with seven color plates, \$7.75.

MODERN TREATMENT—Volume 2, Number 1, January 1965—Treatment of Stroke, Fletcher H. McDowell, M.D., Guest Editor; and Treatment of Menstrual Disorders, Jay J. Gold, M.D., Guest Editor. 1,500 pages per year. Hoeber Medical Division—Harper & Row, Publishers, Inc., New York, N.Y., 1965. Laminated paperback; subscription price, \$16.00 per year.

PREVENTIVE MEDICINE—Principles of Prevention in the Occurrence and Progression of Disease—Second Edition—Edited by Herman E. Hilleboe, M.D., Professor of Public Health Practice, Columbia University, School of Public Health and Administrative Medicine; and Granville W. Larimore, M.D., First Deputy Commissioner of Health, State of New York, Department of Health, Albany. W. B. Saunders Company, Philadelphia and London, 1965. 523 pages, \$12.00.

PROGRESS IN CLINICAL CANCER—Volume I—Edited by Irving M. Ariel, M.D., F.A.C.S., Associate Clinical Professor of Surgery and Attending Surgeon, New York Medical College, Flower and Fifth Avenue Hospitals; Attending Surgeon and Chief of the Soft Somatic Tissue Tumor Service, Hospital for Joint Diseases; Attending Surgeon, Pack Medical Group, New York, N.Y., Grune & Stratton, Inc., New York and London, 1965, 789 pages, \$35.00.

PULMONARY EMBOLIC DISEASE—Proceedings of the Symposium, May 22-23, 1964, Boston, Massachusetts. Sponsored by Veterans Administration and Veterans Administration Hospital, West Roxbury, Massachusetts. Edited by Arthur A. Sasahara, M.D., Assistant Chief, Medical Service and Director, Cardiopulmonary Laboratory, Veterans Administration Hospital, West Roxbury, Mass.; and Myron Stein, M.D., Associate Professor of Medicine, Brown University and Physician-in-Charge, Pulmonary Division, Rhode Island Hospital, Providence, Rhode Island. Grune & Stratton, Inc., New York and London, 1965. 312 pages, \$14.50.

ROENTGEN DIAGNOSIS OF THE HEART AND GREAT VESSELS—Second American Edition, new enlarged revision—Erich Zdansky, M.D., Professor of Roentgenology, University Institute for Roentgen Diagnosis and X-ray Therapy, Basel, Switzerland. Translated by Linn J. Boyd, M.D., F.A.C.P., Clinical Professor of Medicine; Consultant, School of Graduate Sciences, New York Medical College, Flower and Fifth Avenue Hospitals, New York, New York. Grune & Stratton, Inc., New York and London, 1965. 423 pages, \$26.50.

STUDY WHEELS IN HUMAN ANATOMY—Ben Pan-sky, Ph.D., and Earl L. House, Ph.D. The Macmillan Company, New York, and Collier-Macmillan, Limited, London, 1965. Price: \$6.95.

SYNOPSIS OF CLINICAL TROPICAL MEDICINE — Pathogenesis, Clinical Picture, Diagnosis, Prognosis, and Therapy—Oscar Felsenfeld, M.D., M.Sc., Lieutenant Colonel, Medical Corps, United States Army; Associate, Department of Experimental Pathology, Walter Reed Army Institute of Research, Walter Reed Army Medical Center, Washington, D.C. The C. V. Mosby Company, St. Louis, 1965. 378 pages, \$9.85.

SYNOPSIS OF CONTEMPORARY PSYCHIATRY—Third Edition—George A. Ulett, B.A., M.S., M.D., Ph.D., Professor and Chairman, Department of Psychiatry at the Missouri Institute of Psychiatry (St. Louis), University of Missouri School of Medicine; Director, Division of Mental Diseases for the State of Missouri; and D. Wells Goodrich, M.D., Chief, Child Research Branch, National Institute of Mental Health, United States Public Health Service, Bethesda, Md. The C. V. Mosby Company, Saint Louis, 1965. 299 pages, \$6.75.

TERATOLOGY—Principles and Techniques—Edited by James G. Wilson and Josef Warkany. The University of Chicago Press, Chicago, Ill., 1965. 279 pages, \$5.50.

TRAUMA TO THE LIVER—Volume III in the Series MAJOR PROBLEMS IN CLINICAL SURGERY—J. En-glebert Dunphy, M.D., Consulting Editor—Gordon F. Madding, M.D., M.S. (Surgery), F.A.C.S., Associate in Surgery, Stanford University Medical School; and Paul A. Kennedy, M.D., F.A.C.S., Clinical Instructor in Surgery, Stanford University Medical School. W. B. Saunders Company, Philadelphia and London, 1965. 134 pages, \$6.00.

TWENTY-MINUTE HOUR—A Guide to Brief Psycho-therapy for the Physician—Pietro Castelnovo-Tedesco, M.D., School of Medicine, University of California at Los Angeles. Little, Brown and Company, Boston, Mass., 1965. 184 pages, \$5.95.

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NEW BOOK

THE CRAFT OF SURGERY, in 2 vols. Edited by Philip Cooper, M.D. 1510 pages. Illustrated. 1964. Little, Brown. Boxed set, \$42.50. A collection of the "tricks of the trade" of some of the world's foremost surgeons; the techniques they have personally developed, tested, or modified.

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Community Health Week Scheduled November 7-13

The third annual nationwide observance of Community Health Week will be Nov. 7-13, 1965, F. J. L. Blasingame, M.D., executive vice president of the American Medical Association, has announced.

"Teaming up for Better Health" will be the theme. State and local medical societies will join with allied health groups in developing public programs emphasizing local medical progress, available health facilities and services, and the individual and co-operative roles played by members of the community health team, Dr. Blasingame said.

AMA Convention Program

What is expected to be the largest American Medical Association convention in history will be June 20-24 in New York City.

The program is outlined in a special section of the May 10 *Journal of the AMA*.

An attendance of 69,500, including 25,000 physicians, is expected. The largest previous AMA convention was in 1961 in New York City when 64,679 attended, including 23,083 physicians.

James Z. Appel, M.D., Lancaster, Pa., will be installed as AMA president. He succeeds Donovan F. Ward, M.D., of Dubuque, Iowa.

Six general scientific sessions will be coordinated by secretaries of various AMA specialty sections. Topics include hearing, adverse reactions, non-narcotic drug addiction, metabolism in growth development and aging, diagnostic cytology, and organ transplantation.

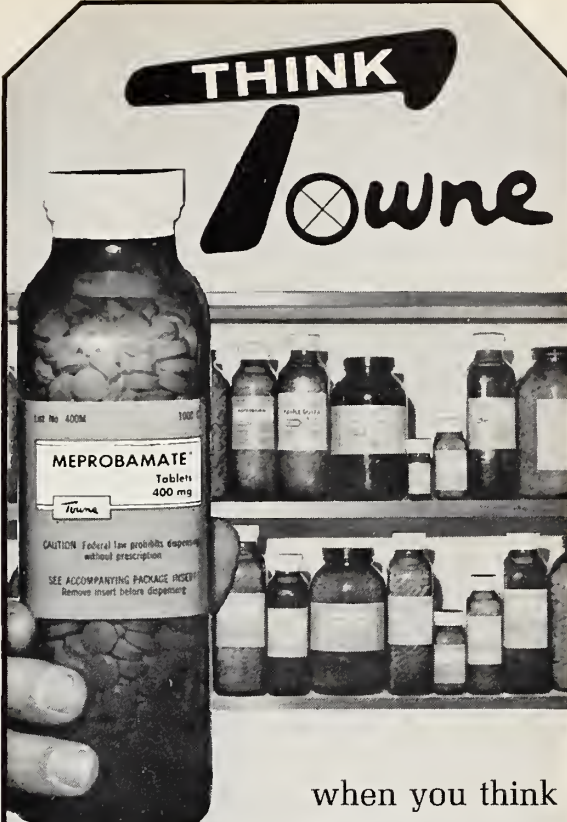
Another highlight will be the fifth Multiple Discipline Research Forum, presented this year as a program of the AMA Section on Experimental Medicine and Therapeutics. AMA's other scientific sections also will present programs for physicians in their specialties.

The more than 350 scientific exhibits will be housed in the New York Coliseum. The Coliseum also will be the site of many scientific sessions and an extensive medical motion picture and television program.

The AMA's policy-making House of Delegates will meet in the Americana Hotel. Speaker of the House of Delegates is Milford O. Rouse, M.D., of Dallas, Texas. Walter C. Bornemeir, M.D., Chicago, is vice-speaker.

Members of the AMA Board of Trustees include Percy E. Hopkins, M.D., Chicago, Ill., chairman; Raymond M. McKeown, M.D., Coos Bay, Ore., AMA secretary-treasurer; Lester D. Bibler, M.D., Indianapolis, Ind.; J. B. Copeland, M.D., Austin, Texas; Gerald D. Dorman, M.D., New York City, N. Y.; Wesley W. Hall, M.D., Reno, Nev.; Charles L. Hudson, M.D., Cleveland, O.; Alvin J. Ingram, M.D., Memphis, Tenn.; Robert C. Long, M.D., Louisville, Ky.; Homer L. Pearson, M.D., Miami,

(Continued on Page 58)



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IN BRIEF

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Indications: Norpramin is useful in the treatment of: neurotic and psychotic depressive reactions, and in manic depressive or involutional psychotic reactions. It may be used as co-therapy with tranquilizers in the treatment of markedly agitated forms of depressions.

Contraindications: (1) Norpramin should not be given within two weeks of treatment with a monoamine oxidase inhibitor. (2) Because of its autonomic effects, it is contraindicated in patients with glaucoma, urethral or ureteral spasm and recent myocardial infarction. (3) Severe coronary heart disease because of possible tachycardia. (4) Active epilepsy as it lowers the threshold for epileptiform seizures.

Precautions: (1) Norpramin treatment should not be substituted for hospitalization or restraint if the risk of homicide or suicide is considered grave. (2) In patients with manic depressive illness, Norpramin may induce a hypomanic state after the depressive phase terminates. (3)

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For further information, contact Sherman Thompson, Administrator, 555 North Campus, or the Association of Commerce and Industry, Ontario, California.

GENERAL PRACTITIONER OR PEDIATRICIAN urgently needed in East Bay area, midway between San Leandro and Hayward, near 25-million-dollar shopping center. Tremendous opportunity—patient-to-physician ratio is 10 times California average. Adjacent parking. Suite large and well-laid-out. Six months' free rent. Call BR 8-2222, or write to Dr. Marco H. Goodman, 16378 East 14th Street, San Leandro, California.

GENERAL PRACTITIONER: Married, under 50, to establish independent practice with well-established general practitioner in new medical center, with all other specialties represented by well-established men; across street from 80-bed accredited hospital, in beautiful, prosperous Southern California community of 25,000. One hour to desert, beach, or mountains. Box No. 98,700, California Medicine.

DOCTORS NEEDED IN TWENTYNINE PALMS, CALIFORNIA. Wonderful opportunity for general practitioner or general surgeon in rapidly growing desert community. Experience in anesthesia helpful. Fine climate, smog free, excellent schools and churches. All recreation available within reasonable distance. Write Administrator, Twentynine Palms Community Hospital, 5792 Adobe Road, Twentynine Palms, California.

LOS GATOS, CALIFORNIA—Available for internist, pediatrician, or general practitioner. Unlimited, immediate opportunities. Established group of individual practitioners. Ground-floor individual offices; ideally situated; adjacent parking; air conditioned. Hospital situation excellent, five minutes away. Close to established laboratory and x-ray services. Unsurpassed living and climatic conditions. Less than 25c a square foot. Box No. 98,805, California Medicine.

GENERAL PRACTITIONER—AVENAL: Opportunity for rapid establishment of an excellent practice in expanding area. Centrally located, school-conscious, 4,000-population community that is well-suited for the growing family. Fully equipped, modern 28-bed hospital. Local airport and nearby country club and Junior College. Experience here could be very remunerative as well as enjoyable. To learn more details, contact: Joseph A. Aponte, Administrator, Avenal District Hospital, P.O. Box 400, Avenal, California 95204. Phone: Avenal 278.

MEDICAL WRITING

PROFESSIONAL WRITING HELP FOR MEDICAL AUTHORS—Editing or collaboration. Consultants in all specialties. Completely confidential. See California Medicine, 99:104-105, Aug. 1963. Manuscript Service Associates, Box 6596, Stanford, California 94305.

OFFICES FOR LEASE, RENT OR SALE

NEAR PALO ALTO—CENTRAL LOS ALTOS—Two medical suites, one 500 sq. ft., one 675 sq. ft.; individual entrances; examining rooms, laboratory, lying-in room, consultation room, office, reception room, etc. Other suites occupied by pediatrician, dentist, etc. Well-established building, corner Second and State Streets; air conditioned, adjacent free parking, near shopping center. Minimal rental. Phone: Los Altos 948-5004.

POMONA, CALIFORNIA—Medical suites still available in large medical center. Great need for ophthalmologist, internist, GP, OB-GYN, pathologist. Excellent for newcomer in prestige area. C. G. Byson, 1141 North Garey Avenue, Pomona. Phone: 714 623-4624.

SANTA MARIA, CALIFORNIA—Medical office for lease in established medical-dental building. Offices exceptionally well planned. Laboratory and three examination rooms have built-in supply and instrument cabinets. Adjacent parking. Call R. A. Wooten, Walnut 5-3204, Santa Maria; or write Edna Stewart, 20 Echo Lane, Piedmont, California.

MEDICAL HOSPITAL COMPLEX—Construction to begin Spring 1965 on a unique 62-acre Medical Hospital Complex, located in the foothills near Sunset City, on Highway U.S. 40, within 20 minutes of downtown Sacramento. Opportunities for physicians to rent office space, buy medical lots and build own office; also opportunities for investment. Open staff, 50-bed general hospital to be constructed soon; will be especially attractive for general practitioners. Excellent opportunity for several general practitioners to associate in a partnership or clinic-type practice. Inquiries invited; write to: Sun-Rock Syndicate, 1721 Professional Drive, Sacramento, California 95825.

SALINAS, CALIFORNIA—Population 58,000. New, beautiful, air-conditioned medical building in the heart of Salinas's Medical Center, across from large hospital. Office suites available now. Design your own floor plan and choose your color scheme. Medical laboratory on premises. Rent will be on basis of 38c per square foot; Muzak, elevator, utilities, janitorial service and ample parking included at above price. For more information, contact: Mr. James L. Schoenburg, 64 San Miguel Avenue, Salinas—phone 408 422-3903.

HEMET, CALIFORNIA—Medical building for rent in fast-growing rural community. Excellent opportunity for GP or specialists, 1,800 sq. ft. (will divide). Close to highly successful district hospital being expanded to 135-bed complete general hospital, including all phases of medical care for service area for 55,000. E. W. Cox, 116 So. Taylor—Phone 714 658-2144.

MEDICAL SUITE AVAILABLE—Approximately 2,000 sq. ft. Well planned for general practitioner. Will alter to accommodate tenant. Vicinity suitable for GP or specialist. Full time or part time. Contact: A. L. Barreiro, M.D., 1004 North Doury Street, Hanford, California.

LONG BEACH: COMMUNITY MEDICAL & DENTAL CENTER BUILDING, INC.—Directly across the street from the newly expanded community hospital. Well-established medical center; available August 1, 1965, a suite with 1,810 sq. ft., outfitted for an orthopedic surgeon, or a pediatrician, and/or their associates. Will consider other practices of medicine. Phone 213 GE 9-2125 or GE 8-5568.

SAN JOSE, CALIFORNIA—Medical office for lease in established medical-dental building in East San Jose, near new Alexian Bros. Hospital. Patients waiting. Laboratory and two examination rooms. Adjacent parking. Call or write A. L. Johnson, Jr., M.D., 281 Pamela Avenue, San Jose—408 258-0320.

GENERAL PRACTITIONER NEEDED—Contra Costa County; over 3,400 people—new families being added each month; 6,000 people by 1970. NO PHYSICIAN IN AREA. Have office space available in local shopping center. Can offer financial aid, if needed, to competent physician in the opening of practice in this location. Address inquiry to E. W. Smith, 11000 San Pablo Avenue, El Cerrito. Phone: LAndscape 6-5202.

MODERN MEDICAL BUILDING (7 treatment rooms, laboratory, x-ray facilities, consultation room) for rent, in southern East Bay area, approximately 35 miles from San Francisco in one of the largest and fastest-growing communities in California. Located three minutes from almost-new, 150-bed hospital with open staff. Ideal climate and cultural opportunities. University of California and Stanford University Medical Centers close by. Call: 415 793-2645.

ORANGE COUNTY—NEW ADDITION TO MEDICAL BUILDING—Suites available. Established, balanced staff needs general practitioner or internist. Busy ENT desires associate. Near hospital. Generous off-street parking. Quality appointments, air-conditioned, all electric; carpeting, drapes, in garden suites—can be custom designed. Desirable location in Garden Grove—Write P.O. Box 545; phone 714 673-1524.

(Continued on Page 66)

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AMA Convention Program

(Continued from Page 51)

Fla.: L. O. Simenstad, M.D., Osceola, Wis., and Dwight L. Wilbur, M.D., San Francisco, Calif. AMA President Ward, President-elect Appel, and Past President Edward R. Annis, M.D., Miami, Fla., are ex-officio members of the Board.

The Case for Contraceptive Pills

The contraceptive pill is safe for the vast majority of women, and is not medically undesirable, as some have claimed, says an article in the May 3 *Journal of the American Medical Association*.

In an article entitled, "Let's Be Honest About the Pill!" John Rock, M.D., of the Rock Reproductive Clinic, Inc., Brookline, Mass., discusses medical features of contraceptive drugs currently in use.

"The most common side effects of the pill are those which normally accompany the first few weeks of a normal pregnancy, but they are never as severe as those commonly seen in pregnancy," Dr. Rock said.

These discomforts are edema (swelling), usually in the feet or hands, and nausea.

"As medication is continued the side effects usually subside, but, if necessary, well-known adjunctive pharmaceuticals will probably bring relief. Furthermore, these complaints are made by no more than 20 per cent of the women who take the pills, and with most the discomfort is mild, temporary and intermittent," Dr. Rock said.

Perhaps 5 per cent of all women find one brand of pill less troublesome than another, and "not more than 2 per cent of all women cannot take any authorized brand," Dr. Rock said.

"Some of the pills are of the male-sex-hormone series, and as such, at a daily dosage level of about 10 mg., could theoretically disturb the development of the urogenital tract of a female fetus. However, this could happen in serious degree only if medication of this type were given to a woman fairly constantly during the first 8 or, at most 12 weeks of her pregnancy.

"The pills, or progestins, are sometimes so used in an effort to improve the endometrial support of a fetus thought to be in danger of aborting. For this purpose, at least 10 mg. per day of one of the pills of the estrogen series is advisable, especially during the first three months of pregnancy," Dr. Rock said.

Another unsound speculation, he said, is that use of the pills postpones the menopause. Although the pills don't postpone menopause, the sex steroids they contain are useful in relieving distressful symptoms at this time, Dr. Rock said.

It is true that the pills cause metabolic changes which simulate pregnancy, and this may disclose latent diabetes or thrombophlebitis. The pills don't cause the symptoms, however; they only bring them out. Early revelation of such a condition should be considered a "prophylactic blessing," Dr. Rock said.



